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THE TRAINING OF THE DESIRABLE PRACTITIONER AND HIS MISSION *

S. J. MELTZER, M.D., LL.D.

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To you this occasion is very significant; it marks an epoch in your life. Finally you are out of school, out of man-made schools. Only a little more cramming for the state board examinations and you are free, free from compulsory studies, free to learn afresh that which you ought to know well, and to forget that which is only a disturbing haze in your mind. But you ought to be aware that this occasion does not mark the end of all schooling. You have not arrived at the terminus; you are only at a station where the roads change. You are not celebrating the termination of your medical school days. It is your commencement day; you are passing the entrance examination into the school of life; into that particularly difficult life which the medical practitioner has to live. In that school you stand under the supervision of no other schoolmaster than yourself. You will not have to pass examinations. But remember that your markings will be made nevertheless, not only by your own conscience, if you cultivate one, but by that high court composed of your professional brethren, your patients and the public at large—a court from whose judgment there is no effective appeal. Your advanced standing is in the community at large; but so are also your failures. After years of attendance in that tutorless school of life, many who had their eyes open learned a lesson or two from the penalties they had to pay and the rewards they occasionally received. Such veterans are in a position to know the good which the knowledge of such lessons could do his junior brothers in the freshman class of the school of life. I have passed a score of years in that medical school without a dean and without medical instructors. I have my scars and my medals and, I believe, I learned a thing or two in the battles of medical life. When I was honored by the request of the authorities of your medical school to address you on your commencement day, it therefore occurred to me that a discussion of some of the unwritten rules of the school of life of the practitioner might be most appropriate for the occasion.

The title of my address reads: "The Training of the Desirable Practitioner and his Mission." You can now see that I did not intend to include under this title the discussion of the preliminary training of the practitioner, of the training which he received or ought to receive in his medical school. The character of this training is certainly a very important factor in the production of desirable practitioners. In recent years a great deal has been written and said on this subject, and judging by the results, there is still room for more saying and writing on that important topic. But you are not concerned in this subject, or I shall hopefully rather say, you are not yet concerned in it; you are just out of the preliminary medical training, and it is not my intention to talk above your heads to others, to teachers and makers of medical schools. It is my wish to talk to you of that which you can do and ought to do, in order to become desirable practitioners. I mean to discuss the perpetual self-training of the school-made medical man. Now I wish to be understood at the outset that my remarks are not directed to that small fraction of you who are destined to become leaders in the medical profession. I hope there are such candidates among you. I am at this occasion not interested in their fate; they will take care of themselves without my advices or perhaps still better in spite of them. We are not in danger in the United States of not getting medical generals. We have leaders in medicine of world-wide renown who received their medical education in some of the lowest of the 150 medical colleges of the United States. We had such brilliant medical generals as Beaumont or Marion Sims, great names well known to your school, at a period when the medical knowledge and medical practice of the rank and file were miles behind that of the present generation. The standard of medical practice cannot be measured by the greatness of our leaders. It is the level of the general practitioner, of the rank and file, which indicates the exact position occupied by medical professions in the various sections of this vast country. Our interest, therefore, centers in the great majority of you who are going to be general practitioners, and it is my fond wish to be able to indicate to you some of the procedures which may assist you in becoming efficient and desirable practitioners.

In suggesting to you to strive to become desirable members of the medical profession, I am not going to deliver a sermon from the top of a mountain, I shall not preach such unusually high ideals which might seem to you to be unattainable. I do not deny that I wish to elevate the standard of the practitioner; but in offering an advice I shall not leave the earth. I shall discuss the solution of practical questions from a practicable point of view.

One of the important questions with which you shall soon be confronted is the proper utilization of time. It is highly probable that for two or three years you will have plenty of leisure. Use it now to the best of your ability. You will never have such an opportunity again. Use it in the first place to make yourself solid practitioners. No matter what shape your medical activities may assume in the future, you must try at the very outset of your career to acquire the fundamental knowledge

* Address delivered on Commencement Day to the Graduating Class of St. Louis University Medical School, May 31, 1912.

and skill indispensable to the success of the efficient physician.

As to the method of acquiring it, I confess to some heretical views. You hear and read frequently in addresses of leading medical scientists and clinicians that you must acquire a thorough theoretical and practical knowledge in chemistry, physiology, pathology, etc., before you can raise the claim to be an efficient physician. Assuming you have all the gifts, energy, willingness and perseverance to comply with this ideal requirement, how long will it take you to attain all this wisdom? Surely not less than fifteen or twenty years. What are you to do during this long preparation, and what shall be the fate of the patients which you are bound to acquire in the first decade after your graduation? They, too, are entitled to the treatment of an efficient practitioner. And who of those high priests who preach these sermons master all these sciences? I feel confident that there are extremely few great physicians who really master even a single one of these sister sciences, besides his own, the science of medicine proper. It is one of those sermons which exhorts you on a Sunday morning to be saints, while preacher as well as listeners are conscious that they will remain for the rest of the week simple mortals, afflicted with all the sins to which flesh is heir. The worst of it is, that by asking too much, you do not get even a little. The truth of the matter is that 95 per cent. of the work of the busiest physician can be done, and done well, by a very modest quantity of medical knowledge. But this modest quantity must be thoroughly mastered and mastered early, if you wish to become a successful, desirable physician.

The time for acquiring the mastery of it is during that interval of liberty between the termination of your medical education and the acquisition of a supporting medical practice. I am speaking in the first place, to the majority of you who are not going to have hospital appointments. To you I say: Do not lose any time. Proceed at once to acquire methodically that knowledge of the fundamental facts with which the busy practitioner has to be thoroughly familiar in most of his daily work. And let me make this confession of faith. Although you had to study a goodly number of more or less thick books, I feel certain that the indispensable knowledge which you will have to master in your immediate future could be put into a book of very modest proportions. It would be a service to younger physicians—and to some older ones, too—if busy, substantial practitioners would publish detailed tables of their daily work occurring during a week or two at the various seasons of the year. It would show how much of the practitioners' time is taken up by comparatively insignificant ailments and would also show the percentage and the character of the more serious diseases which claim the attention of the busy practitioner. The knowledge of these ailments and diseases the young beginner should have on the tip ends of his fingers. Such a list you could perhaps obtain from members of the faculty.

To me it seems that of the more serious diseases you ought to know well all about tuberculosis, the pneumonias and pleural effusions; about endocarditis and myocarditis, about gastric and duodenal ulcer, about biliary and renal colic, about appendicitis, volvulus, intussusception and incarcerated hernia; about typhoid, diphtheria, meningitis, and otitis and its possible complications; about the eruptive diseases and their complications and sequelæ; about erysipelas; about malaria, the various forms of syphilis, gonorrhea and rheumatism; about diabetes and nephritis. Of course, this is by no means a complete list. You must know further all about alarming symptom-complexes; about gastric and intestinal perforations; about pulmonary and cerebral emboli; about pulmonary, gastric, intraperitoneal and cerebral hemorrhages; about pulmonary edema and laryngeal stenosis; about eclampsia and coma. You must acquire a thorough knowledge of how to meet various enfergencies, how to stop hemorrhages, how to perform artificial respiration, and you must know the poisons and their antidotes. I do not mention here the incidents of surgery, gynecology and obstetrics, with some of which every practitioner must be well acquainted.

When I said, you must know all about these diseases and conditions, I did not mean that you ought to study up the theoretical side of it, the physiology, pathology and etiology. On the contrary, I advise against all theoretical studies until you have thoroughly mastered the indispensable practical side. Study thoroughly the symptomatology, course and treatment of the frequent diseases. Do not read your text-book from page to page. Pick out the necessary chapters. You probably have your notes and books; it is best, however, to read on the same subject in various books; you gain a deeper and more judicious knowledge of things. But be careful in your selection of text-books. We have many uncritical writers who do not possess even good judgment as to what to copy. Do not use large hand-books at the beginning; a translation of Strümpell's text-book is greatly to be recommended. I shall repeat, I advise that you acquire a thorough book-knowledge of the essential things a busy practitioner has to deal with. I believe that this knowledge, which is not very extensive, can, by diligent work, be mastered in three or four months. Do not believe that you know it now, because you passed examinations in all these things. You do not know them "for power," and you will soon forget them all. And even if you know them, by singling out the essential things and studying them well, you create in your mind a very valuable ready-working capital.

But now, after all these acquisitions, do not believe that you have already real knowledge. Book-knowledge becomes valuable only after it has been thoroughly tested in practice; it makes the testing easy and very profitable. Now the time has come for you, when you must try hard to come in contact with actual practice; this is absolutely indispensable. Try to connect yourself with some dispensary, even if it is as only the third or fourth assistant. But be on your guard. Dispensary work, with the large number of patients, the careless routine procedures, the hasty, superficial examinations and the prescribing by numbers, breeds inefficiency. But with your careful preparation and with a clear notion of that which you want to acquire, you run no danger. Try not to have too many patients, and if you can not avoid it, try to select a few patients for a more careful study; you and the patients will benefit by this. Perhaps you could take some patients home for a more careful examination; but avoid any possible suspicion that you wish to use them for any material benefit, or for advertisement; that would be the beginning of the destruction of your reputation. In these studies, learn first of all how to observe without any preconceived notions, how to elicit and collect symptoms. Try to master the art of percussion and auscultation and to identify all these symptoms with your theoretical knowledge of them. You had better not trust yourself at the

beginning as to your recognition of the nature of your observations and the correctness of your conclusions; ask your neighbor for his opinion. Do not be ashamed to ask and do not mind if it happens that your neighbor looks down on you on that account. If you continue asking, it will not take long before everybody around you will know your mettle. Incidentally, do not try to show your neighbors that you know more than they; let them find it out for themselves. For the few patients whom you are studying in particular do not employ the dispensary method of prescribing; learn how to prescribe in a specific way for the specific trouble of that particular patient.

Besides the service in a dispensary, try to attach yourself to such an out-patient service in which you could call on poor patients at their homes; in this way you will have an opportunity of studying acute diseases. Gradually you will acquire private patients of your own. Let us hope for your ultimate success that your private practice will grow slowly. An early and rapid growth of practice interferes greatly with the proper growth in efficiency of the young practitioner. In the early years of growing experience each patient must be examined slowly and thoroughly. The diagnosis should be arrived at only after a careful analysis of anamnesis and symptoms. Do not look for pathognomonic symptoms. Pathognomonicity is conducive to mental decay. Every case which requires thinking, analysis and conclusions contributes to your mental and practical training. Make notes of your cases, and at home in your library, go over your conclusions again consulting the corresponding chapters in your text-books.

During this period of growth fill up gradually the gaps of your knowledge regarding the less frequent diseases. Learn and acquire gradually a tolerable mastery of the manual execution of indispensable diagnostic and therapeutic measures, like spinal puncture and intraspinal injection, laryngeal intubation, the dexterity in the proper use of the stomach tube and the introduction of a urethral catheter. Acquire one after another a certain degree of mastery of the technic of microscopic and chemical analysis of the gastric contents, urine and feces, of the microscopic examinations of blood and of some clinical methods of bacteriology. Learn to use a blood-pressure apparatus and learn to decipher the meaning of a sphygmogram, cardiogram, phlebogram, electrocardiogram and *x*-ray pictures. Obtain also some knowledge and dexterity in laryngoscopy and ophthalmoscopy. When you will become a very busy practitioner, you will have most of these manipulations done by others, who may be experts in these lines. But if you have acquired some decent knowledge about these things yourself, the laboratory experts will not talk to you above your head, you will know how to reduce each statement to its proper level, and many an erroneous diagnosis will thus be avoided. It is pitiful often to listen to old leading practitioners, using terms of modern medicine, with the fundamentals of which they have neglected properly to familiarize themselves.

So far I have talked to you from a purely practical point of view. The advice which I have given is, I believe, not hard to follow, and if you are serious in your purpose and diligent in your work, you will develop within seven or eight years into a competent, trustworthy physician. But a desirable physician must be more than that, and I have a few more things to say.

In the first place, any and every practical physician ought to try to keep up some affiliations with the scientific side of medicine. Of course, he must try to see now and then autopsies which often clear up the nature of some obscure disease. But physicians of the newer generation ought to become familiar with the idea that the changes found after death from a disease are often merely the consequence of the disease and not its cause or its nature. A disease is a functional disturbance and physicians must accustom themselves to think in functional terms. It would be of great help to them if, now and then, they would study up one chapter or another of modern physical or chemical physiology or physiologic pathology. Besides the acquisition of knowledge and the training of the mind in the practice of thinking in functional terms, such occasional occupation with purely scientific problems elevates the standard and the general tendencies of such physicians.

Moreover, you ought to be aware that the medical knowledge which you have acquired in your medical education presents only a phase in medical history. That which you consider now in medicine as conservative, safe and indispensable was once new and met with violent opposition from the leading conservative men of that time. In the face of the rapid progress medicine is making in our day, the efficient physician must make up his mind to be ready to pick up such new things which have definitely proved their right of existence. Metabolism, immunity, anaphylaxis and chemotherapy present such functional problems of which the desirable physician ought to obtain a broad understanding.

In discussing the self-training of the young practitioner I would like to say a frank word on therapeutics. Many of our leading solid clinicians think lightly of therapeutics—unless it be water or air—and a good many of our fine, well-trained pharmacologists often speak sneeringly and contemptuously of the drugging habit of the busy practitioner. But let me say this: Our great medical teachers received their training in clinics closely adjoining the autopsy-room, and won their spurs by making brilliant diagnoses of such pathologic conditions which permitted early their verification on the autopsy table. "Interesting" cases of this type, which naturally rarely benefit by drugs, and which form mostly the bulk of the work of the great clinician in his hospital activities as well as in his consultation practice, give a wrong impression of the importance of drugs in general medical practice. In the work of very busy and efficient practitioners, however, who trust drugs and know when, how and which of them to use, such classical cases as above mentioned form only a small fraction. It is instructive to know how some of these great clinicians treat their patients when they have to deal with them all alone from start to finish. In a long experience I came across prescriptions by some of our great men which were a revelation to me. I could fill a page or two with such indiscreet gossip. Polypharmacy, incompatibilities and even notorious patent nostrums were there.

As to my friends, the pharmacologists, I risk to say that it would have been better for therapeutics as well as for themselves, if they would have had in addition to their scientific training an actual training in medicine, at the bedside of patients, and not of patients in hospitals, where there are practically no responsibilities to any one in particular, but at the bedside of a private patient, whose mother or wife, with eyes red from sleeplessness and crying stares at you, watches every movement of yours and begs you for help. You will then cease to be a hypercritical philosopher. It is well enough for pure science to restrict your interests to such state-

ments only, the validity of which has been definitely proved, according to your notion of proof. In medicine there is human life and happiness at stake, and you ought to recognize the undeniable fact that some claims may be true, even if you with your methods have not yet been able to prove them. The history of the use of iron in the treatment of chlorosis ought to be a lesson. While every physician could tell you from his own knowledge that, say, Blaud's pills act in these cases like a charm, great laboratory men like Bunge and Schmiedeberg denied persistently that inorganic iron can be absorbed and thus capable of supplying the iron deficiency of the anemic patient. The struggle lasted nearly a quarter of a century. The trouble with the men, trained exclusively in laboratories, is twofold. First, they do not seem to see that a medical fact, observed critically by a capable physician, deserves as much credence and consideration as a fact developed by laboratory methods, and, second, that the laboratory man offers here positive opinions in a field in which he has had no experience.

I may say here that great physicians, like Traube and Kussmaul, who were busy general practitioners before they entered on their brilliant scientific clinical careers and whose training has been more in the experimental laboratory than in the dead-house, were never infected with therapeutic nihilism, though they dwelt then in the midst of this mental epidemic.

While I thus caution you against teachings which speak contemptuously of treatment by drugs, I have to warn you against the danger of uncritically accepting statements made in favor of numerous drugs. Not only are there a great many old medical compounds which the sound practitioner will do well to eliminate from his list, but he ought to be very discriminative in accepting new drugs which are backed up by seemingly reliable laboratory or clinical authorities. Here you will be often confronted with premature, uncritical statements which do not stand verification. This, however, is still comparatively innocent. The greatest danger threatens you from much worse quarters. There are base, unscrupulous individuals and concerns abounding in this country, and apparently not few of them in your city, who select the sick and the suffering as the easiest prey for their greed. The drugs which they offer, some worthless, some dangerous, are praised beyond measure. They are after you, the young practitioner, to become their innocent tool. They spare no money to trick you into it. They employ all sorts of talents, journalistic, clinical and laboratory. They publish their own journals, which they offer you for one dollar a year or for less. They smuggle their articles into some of the five-dollar journals; their hirelings present papers in low and high medical and scientific societies. They are for science, for progress in medicine, if that is a good bait, and they are for medical liberty. They have their men in the United States Congress, and in some governmental departments. They are everywhere; and when you are not on your guard, they will get you. But a desirable physician should do more than resist passively; he should actively assist in the war which the united profession of this country is trying to wage against this great danger to the physical, moral and mental life of the nation.

In the selection of the drugs which you wish to employ, do not be influenced by the advertisements, no matter in what journal; neither by the literature which is sent to you, whether with or without samples of the drug. Select carefully the medical journals which you are reading, and be also on your guard in the selection of the articles which you wish to read with care. By attentive frequent perusals of medical periodicals you will soon acquire a knowledge of who is who in the medical profession in this country, from whom you can and ought to learn, and whose statements you may trust. Besides the dividing line between knowledge and ignorance, there is the line which separates the decent from the indecent physician. This division is more important than the first one. Throw your indifferent brethren to the indecent ones and stick closely to the class of decent physicians. They need not be saints; every-day common decency is good enough. Be sure that they do not sell themselves, their science or their patients to the highest bidding physicians and surgeons or to drug manufacturers.

Those who are in the practice of medicine, and those whose task and duty it is to make the practice efficient, ought to become imbued with the idea that the treatment of the patient is the paramount object of the practitioner. The very fact that great stress is to be laid on treatment will assist greatly in the development of its efficiency. The enlistment of men of genius in behalf of therapeutics brought us in recent years the marvelous new facts and principles of the serum treatment and chemotherapy. The actual curative remedies are still small in number, but on the basis of these principles more may be expected. But the prevention of the fatal outcome of a grave disease is not the only aim of therapeutics. Treatment covers a variety of objects, to be attained in various ways. The patient must be made comfortable even in hopeless diseases. Self-limiting diseases must be attended in order to obviate errors of nature or of attendants, and an attempt must be made, where possible, to accelerate the recovery. All sufferings, even of only temporary nature, must be alleviated. Our old clinicians had and have too much contempt for the treatment of symptoms. Salicylates which surely relieve rheumatic pains should be given even if they do not accomplish a cure, or even if the rheumatic fever would have gotten better without salicylates — if the sufferer could have waited long enough. Of course, no treatment should be given which could diminish the patient's chances of recovery, and no such treatment should be given which increases the patient's suffering and discomfort without having reliable evidence that it increases his chance for life. It is an interesting psychologic phenomenon that some medical men who are drug nihilists would insist on giving cold baths to typhoid patients who beg to be left alone, with flimsy statistics as the only proof for the usefulness of the method. I hear that some of our confrères became milder in their requirements after they had to take a dose of their own medicine. The story repeats itself in the cold-air treatment; an ardent advocate of the method recovered from his pneumonia without its aid.

Lighter than air is psychotherapy. Do not practice it consciously; you are training yourself to be a humbug. Have a thorough knowledge of your subject which entitles you to speak with conviction; be sincere in your dealings with your patient so as to gain his confidence; have sincere sympathy with your client which ought to manifest itself without obvious demonstration; be practical in your advice, and talk to the patient and his surrounding in common-sense terms — and you will have practiced psychotherapy honestly and successfully.

During health the human being is his own guide. When he becomes sick he loses his bearings and the physician is called on to lead him through and out of

the wilderness. But the physician is and ought to be more than a guide to the patient; he ought to be his natural protector, now more than ever. In the years gone by patients, with rare exceptions, had no adversaries. With the discovery that most of the acute diseases are infectious, the recognition came to light that each patient is more or less a menace to his surrounding, and it became the painful duty of the community to look out for the protection of its healthy members. The poor patient, besides his affliction and helplessness, has now an official enemy, and the health officer is the prosecuting attorney for the community. It is, therefore, now the natural duty of the physician to be the attorney for the patient. It is certainly the duty of every enlightened physician to assist in the protection of the community against the spread of diseases. But at the same time he ought to see to it that no measures, and especially no harsh measures, should be taken against stricken patients, based only on whims and ephemeral theories of half-baked sanitarians, and that the measures should not be carried out with harshness but with charity and kindness.

A desirable practitioner ought to be aware also that the particularity of his calling requires of him a higher standard of ethics. A physician who is ethically not higher than the average man is ethically lower than the average man. I shall offer two reasons for this dictum. The activities of the ordinary man are in most cases susceptible to supervision by his fellow men. The greatest part of the activities of the practitioner, however, are not accessible to outside control. Such an office of trust requires a higher standard of morals. Then there is the fact that the physician deals with situations which very frequently have tragic elements of distress in them. In disasters humanity asks for altruism, the legal laws of selfishness are suspended, you are asked why you have saved your life in preference to that of a woman or a child, strangers to you. Now, my young friends, I do not propose to you to be a hero every day of your life. I am afraid I could not be one even on one day of my life. But it is not a sacrifice to be every day of your life a desirable practitioner; on the contrary, it is a great pleasure. I congratulate you all and wish you great success.

Sixty-Sixth Street and Avenue A.

THE ADDITION OF A FIFTH YEAR TO THE MEDICAL CURRICULUM *

JOHN M. DODSON, M.D.
CHICAGO

The remarkable advance in medical education in the last quarter century has concerned both the kind and the amount of the training demanded of the medical student. Laboratory and practical courses, in which the students, in small groups, are brought into immediate contact with the materials to be studied, and thus obtain knowledge at first hand, have largely supplanted the didactic lecture and recitation, especially in the fundamental branches. Unfortunately the introduction of similar methods—of objective teaching—in the clinical subjects has made little progress, excepting in a few schools, and the lamentable deficiency of our medical students in practical experience at the bedside, is keenly realized. How serious and deplorable is this deficiency has been graphically set forth by Mr. Flexner, of the Carnegie Foundation, in his Report on Medical Education.

The amount of education demanded has been increased at two points—the extent of preparation exacted for admission to the medical school, and the length of time required to be spent therein. As the successive steps in advance have been taken, the decision as to where the increase should be made has not always been wise. When, for example, about fifteen years ago, a general increase was made in the curriculum from three to four annual sessions, it would have been better if, in lieu of this, the advance had been in the premedical requirement, this requirement being at that time in most schools, about two years of high-school work, rather loosely enforced. Much more would have been accomplished in the direction of elevating the standards of the medical profession had the emphasis been placed at that time on a fairly adequate preparation for medical study.

Fortunately, during the last five or six years, rapid progress has been made in this direction, and with about thirty medical colleges now exacting two years of college work for admission, with five of the state boards of medical examiners demanding the same as a prerequisite for licensure, it seems pretty certain that this will be the uniform standard of the medical schools, in the northern states at least, within the next decade. With the present conditions in most of the secondary schools, and while so large a proportion of students enter college at 21 or older, and the medical school at 24 or later, it seems unwise to contemplate any further advance in the requirements for admission to the medical schools, as a universal standard, in the near future. Nothing less than this, however, will suffice to give the student adequate preparation for the study of medicine under existing conditions. One year of college work is not enough to afford the requisite training in English, mathematics, physics, chemistry, biology and foreign languages, notwithstanding the fact that the Council on Medical Education of the American Medical Association has recommended such a curriculum of one year.

If the premedical curriculum may be regarded as satisfactorily determined for the present, the next step in advance in medical education, at once the most needed, and, under the right conditions, the most feasible, is the addition of a fifth or practical year to the present course of study, this year to consist of service as an intern in a hospital, under supervision of the faculty or, in exceptional cases, for those who look forward to a career of teaching and investigation, of advanced and research work in one or more departments of the college. This fifth year should precede the conferring of the degree.

The feeling is universal among medical educators that medical graduates are entering into practice with too meager first-hand knowledge of disease — such knowledge as can only be gained by actual experience, at the bedside under careful supervision. In the earlier years of medical education in the United States, such experience was secured by an apprenticeship with a preceptor. This, indeed, constituted the sole means of preparation of a considerable proportion of medical practitioners until well after the middle of the last century. For the remainder, the one or two sessions of medical lectures, of four or five months each, was the incidental rather than the chief part of their training. The rapid development and growing importance of the fundamental medical sciences led to a steady increase in the amount of time required of the student in the college, while the changing conditions and methods of practice made it

* Read before the meeting of the Association of American Medical Colleges, Chicago, Feb. 28, 1912.

more and more difficult for the preceptor to give his student-apprentice effective instruction, and so his function in the training of the student became gradually less, and the title of preceptor merely nominal. The passing of the preceptor, and of the excellent practical training which the student received at his hands, was a real loss in medical education, but one which seems to have been inevitable. Meanwhile the opportunities for practical experience in the hospital have enormously increased. The hospital idea has grown rapidly. The public is becoming educated to the fact that the hospital is the best and most economical place for the sick — medical, surgical or obstetric. Few cities of 15,000 or more inhabitants are to-day without one or more hospitals.

I have sought to ascertain the number of hospitals and of hospital beds in the United States which do, or which should, admit interns and afford them reasonably good opportunities for practical experience. I have taken the following figures from the American Medical Directory, third edition. The data these supplied are not perfect, as many institutions fail to report the number of beds or to indicate clearly the character of the hospital. With the data at hand the hospitals having twenty beds or more, may be grouped as follows:

1. Hospitals associated with, and more or less completely controlled by medical schools; of these there are 104, with 22,365 beds.

2. Hospitals located in cities where medical schools are situated, but not at present controlled by them; of these there are 645, with 73,535 beds.

3. Maternity hospitals, located, with few exceptions, in cities having medical schools; seventy-one, with 4,115 beds.

4. Hospitals, public and semi-public, located in cities not having medical schools; of these there are 1,381, with 82,320 beds.

5. Public hospitals for the insane, of which there are 173, with an aggregate of 183,665 patients.

6. County and state infirmaries; 267, with 30,100 beds.

7. Private hospitals comprising (*a*) those for nervous and mental diseases of which there are 124, with 12,285 beds; and (*b*) those for medical and surgical and special disorders of which there are ninety, with 4,990 beds.

8. Hospitals for contagious diseases; there are fifty-nine, with 6,795 beds.

9. Hospitals and sanatoriums for tuberculosis; of these there are 266, with 21,550 beds.

10. United States marine, Army and military hospitals, of which there are 79, with a total of 8,255 beds.

Each one of these institutions, with the exception of those for the insane and some of the infirmaries for chronic diseases, needs an intern for every twenty or twenty-five beds. Even with our present excessive output of medical graduates each year (at least 50 per cent. in excess of the needs of the country), there should be a vacant internship awaiting every graduate in medicine.

Several of the stronger medical schools report that not only has every graduate from these schools for the last four or five years been able to secure an internship in a good hospital, but the demand for their graduates to fill such positions has exceeded the supply.

In 1906, one medical school added a fifth year to its curriculum, made optional and leading to a *cum laude* degree. Five other schools have since added a fifth year as an optional addition to the course of study, and one, the medical department of the University of Minnesota, now requires this year for graduation. In Germany a practical year has recently been made compulsory and a similar requirement obtains in some other foreign countries. The uniform adoption of a curriculum extending over this hospital year is recommended by the Council on Education of the American Medical Association. Is it feasible? If so what steps are necessary to put it into operation? What regulations should be prescribed in reference to it?

The plan is desirable and practical for the school which is prepared for it and which can secure the necessary hospital connections and control to insure a place, under the right conditions, for all of its students during this intern year. A serious mistake will be made, however, by any medical college which rushes into the scheme hurriedly, just because the idea is "in the air," unless it is able to meet these essentials.

In the first place, no school should add a compulsory fifth year until its entrance requirements have been made equal to those now demanded by the conditions of the time as exemplified by the twenty-nine colleges now exacting two years of college work beyond the high school. One year is not sufficient, and especially will any attempt on the part of the detached medical school to give instruction in the required physics, chemistry, biology and modern languages, be a serious step backward.

The necessity of securing the proper connection with hospitals involves the large question of the relation of the medical school and the hospital — quite the most vital question to-day in medical education in the United States. What should that relation be? It goes without saying that the dispensary and hospital constitute the laboratories for the clinical branches, as do the dissecting-room for anatomy, the morgue for pathology, and the laboratories of physiology, biologic chemistry, pharmacology, histology, embryology and bacteriology for these several sciences. Mr. Flexner says in his report, in reference to control and utilization of the hospital for teaching and research, that the medical school should bear exactly the same relation to the hospital as it bears to these other laboratories. It is obvious, however, that there are very important differences from the nature of the case. The dissecting-room, the morgue and the other fundamental laboratories serve exclusively the purposes of investigation and teaching. There are practically no limitations on the use of their materials for these purposes. The hospital is primarily a place for the care and cure of the sick. Whatever other purposes it may serve, its use, therefore, must always be conditioned on, and subordinate to, that one vital fact — the welfare of the patients. No use of these patients for any purpose can for an instant be tolerated which is in any degree prejudicial to their welfare, entails unnecessary suffering or delays their restoration to health. Moreover, in the long run, it is in the best interest of science, as well as humanity, that no patient should be used as a clinical subject against his will. The use of a pauper patient against his will for instruction or investigation on the theory that he, in this way, makes return for his free treatment, is wrong in principle and pernicious in practice. On the other hand, it is seldom difficult for the tactful, kind physician to secure the consent of a patient, rich or pauper, to serve as a clinical subject.

While the use of the sick for purposes of investigation and instruction must ever be subordinated to their welfare, when conducted under suitable regulations and

supervision, such use is not only not inimical to the patient, but decidedly in his best interest. The hospitals where complete and accurate clinical histories are written, where thorough diagnostic methods are carried out by modern methods, in a well-equipped pathologic laboratory, are, almost without exception, hospitals under the control of a high-grade medical school and in which instruction and research are daily carried on. On this point there is unanimity of opinion by all who are most competent to speak. Says Dr. Keen:

> I speak after an experience of forty years as surgeon to a half-dozen hospitals, and can confidently say that I have never known a single patient injured, or his chances of recovery lessened by such teaching. Moreover, who will be most slovenly and careless in his duties, he who prescribes in the solitude of the sick-chamber, and operates with two or three assistants only, or he whose every movement is watched by hundreds of eyes alert to detect any false step? I always feel at the Jefferson Hospital as if I were on the run with a pack of lively dogs at my heels.

Miss Barfield, after an ample experience as nurse and patient, speaks as follows:

> As a matter of fact, in a properly administered hospital, medical schools are a protection to the patient rather than otherwise, for it usually means that the hospital is a very live one. In teaching hospitals I think that, on the whole, patients are generally better nursed, for everyone is kept up to the mark, including the professors.

And the committee appointed in 1905 to inquire into the financial relations between the hospitals and the medical schools in London says:

> We find that the pressure of a body of eager young men watching the proceedings of their teacher has a tendency to keep the medical men on the alert and to counteract the effects of the daily routine of their duties.

Indeed, the hospital needs association with the medical school quite as much as the college needs the clinical material of the hospital. Hospital boards are beginning to realize this, and some significant demonstrations of this awakening are of recent occurrence. About three years ago the board of directors of a children's hospital, which had been in existence several years, voluntarily sought and entered into affiliation with the faculty of a medical school which had for several years controlled another hospital to the mutual satisfaction and advantage of all concerned. The board asked the faculty of the college to assume entire responsibility for the medical conduct of the hospital; the existing medical staff resigned, and the faculty was given full power to nominate a new staff, which, by the special request of the board, was to include no physician who was not a member of the faculty; clinical instruction and research to be conducted in the wards as directed by the faculty. Within a year another institution has voluntarily sought and secured a similar relation to the same college. These facts are, to my mind, a pretty certain indication of the trend of the times in reference to the relation of existing hospitals and medical schools in some of the cities of the United States. And does it not offer a more satisfactory and feasible solution of the needs of the medical school for clinical material than does the proposition that the medical school must own and maintain its own hospital?

The hospital being primarily an institution for the care and cure of the sick, its maintenance is not properly a function of the medical school, whose business is specifically educational — including research. In most instances the medical school has come into existence to find the surrounding community already abundantly supplied with hospitals — the evidence of which is furnished by the fact that these hospitals are much of the time clamoring for patients to fill empty beds. True, the conditions in these institutions are usually far from satisfactory, but even so shall the medical college duplicate hospital accommodations already equal to or in excess of the demands of the community, at enormous expense for construction and endowment, or shall it seek to establish the right relations, and secure the necessary control of existing institutions, which control, as has been pointed out, would be to the great advantage of both hospital and school? The great medical schools of European countries, where the control of clinical material is most satisfactory and where the best scientific work has been done, do not as a rule own and maintain hospitals. They use the great municipal or state hospitals maintained by the city or state. The corresponding hospitals in our own country, the management of which, tainted by ward politics, has been up to the present time so unsatisfactory from every point of view, nevertheless contain, and will continue to command, the best possible clinical material, such as no non-public institution can hope to duplicate.

In those rare instances in which a large provision has been made for research, either in the medical school or in an institution devoted solely to scientific investigation, there is advantage in having a relatively small hospital, liberally endowed, in which can be collected groups of cases of this or that disease, primarily for the purpose of an exhaustive and protracted study. Into such institutions patients enter with the express understanding that they are to be made the subjects of investigation — not, of course, to their detriment. Here the purpose of investigation supplants the care and cure of the sick as the primary motive, and the burden of maintenance falls properly on the endowment for research.

It seems to me, therefore, that even for the purpose of securing clinical material for the necessary instruction in the junior and senior years of the present curriculum, the medical school, with rare exceptions, must find it through affiliation with existing or to-be-established hospitals, on a pecuniary foundation distinct from that of the medical school itself, and with persistent and intelligent effort, I believe, this can be done. When it comes to the question of finding places for all of its students in their fifth or intern year, there can be no question about which course the college must pursue. No one, surely, would contemplate the possibility of a medical college undertaking the ownership and maintenance of a hospital of such magnitude as to supply internships to all of its graduates. To supply places for all of its students the students must find places as they are now doing, in detached hospitals, in the cities where the colleges are located, as well as in other cities, more or less distantly removed from the medical schools. It is of course not possible, nor is it necessary, that the medical school should have the same degree of control over the hospital for this purpose as is indispensable for the clinical work of the earlier years, and for the conduct of research by faculty and students. Certain things it must insist on, however, if this fifth year is to be of the largest possible value to the student. The mere securing of an internship in a nondescript hospital, in the perfunctory manner in which it is so often done, does not suffice.

The hospital must have or, not having, must institute a good system of clinical records that the intern may write accurate and thorough case histories.

It must have a well-equipped clinical laboratory convenient to the wards where he may make the necessary examinations of urine, blood, sputum, etc., examine blood cultures, and carry out, in short, all of the approved modern methods of laboratory diagnosis.

Some one or more members of the staff must be able and willing to supervise closely the work of the intern, correct his mistakes, and give him needed instruction in the details of the practice of medicine which he has not yet mastered. These members of the staff will cooperate most cordially and effectively with the faculty if they are made extramural members of the faculty of the school. They should attend faculty meetings as often as possible, and should feel themselves to be an organic part of the teaching body.

It will, of course, be of great advantage if the hospital has a school for nurses, and conducts the nursing work of the institution along approved modern lines. It will greatly enhance the quality of the service rendered by the hospital to its interns, and not less to its patients, if it has a trained, salaried pathologist who gives all or most of his time to the work of the hospital, and who is doing original investigation as are other members of the staff. In time all of these things must be insisted on, but for the present trained nursing and research work are unknown in so many otherwise acceptable hospitals that their general introduction may be secured only in the course of time.

The regulations prescribed by the faculty for the intern should be such as to insure that this hospital year be of the largest possible educational value to the student. The rules drawn up by the faculty of Rush Medical College in 1905 were set forth in a circular announcing the installation of the fifth year leading to the *cum laude* degree. As this announcement may not be without interest in this connection I quote it in full.

FIFTH YEAR

Beginning with the sessions of 1905-6 a fifth year is added to the curriculum, which, for the present, will be optional. The work of this year will be that of

A. Graduate work in one of the departments of the college; or

B. An internship in a hospital.

On the successful completion of this fifth year he will receive the degree of Doctor of Medicine *cum laude*.

A. The year of graduate work may be taken either

1. In a fellowship, by students who may be appointed to such positions; or

2. As a graduate student.

In either case the candidate must be in residence at least three quarters and complete the equivalent of seven majors of work in some one department, or of nine majors in three or more departments, and present a satisfactory thesis. The candidate must be recommended to the faculty as entitled to the degree by the department in which the graduate work has been done.

B. Fifth year in an internship.

CANDIDATE

1. Every student wishing to take the fifth year as an intern shall announce his intention in writing to the dean of medical students before the last term of the quarter in which he expects to graduate.

2. The internship may be procured by competitive examination or by appointment.

3. Each candidate shall, during his service, be under the frequent and close supervision of a member of the faculty, to be designated as hereinafter provided.

4. He shall make report to this supervising member of the work he is doing, at least once a month. Such report shall state the number and nature of the cases he has had under his care during the month, and the number of days (if any) that he has been absent from his work, and for what cause.

5. At the end of his year of service he shall submit to his faculty supervisor copies of the complete original histories of at least ten (10) of the cases that have been under his care, and which were written by him, the patients' names to be omitted. These shall be submitted to the committee of examinations for the *cum laude* degree.

6. At the end of his term of service either (a) he shall present a typewritten thesis embodying the thorough study of a case or group of cases, including their thorough examination by modern clinical tests, which must be satisfactory to the committee; or (b) he shall pass an oral and practical examination before the committee at a time and place to be designated by the committee.

7. He shall be present at the commencement when the degree is conferred; no degree is conferred *in absentia*.

FACULTY SUPERVISION

1. During the winter quarter of each year the president of the university, the dean of the faculty, and the dean of students, as a committee, shall designate

(A) A committee on examination for the *cum laude* degree consisting of five of the faculty members, selected from at least five of the clinical departments (medicine, surgery and obstetrics to be always represented), who shall serve for the college year, beginning with the succeeding summer quarter; and

(B) Such a number of supervisors as can most conveniently take charge of the work of the candidates for the ensuing year, for the *cum laude* degree by internships. No faculty supervisor shall have charge of more than five candidates.

2. The interns to be thus supervised shall be assigned to the faculty supervisors by the committee on examinations for the *cum laude* degree, as above provided for.

3. It shall be the duty of the faculty supervisor:

(A) To direct and advise the interns under his charge as to the conduct of their work, to the end that it may be of the greatest possible educational value to him or them. Such advice must be so given as in no way to conflict with the desires and authority of the staff of the hospital in which the intern is serving.

(B) He shall receive from the intern a monthly report of his work.

(C) He shall visit, in person, the hospital or hospitals in which the candidates under his supervision are serving, and acquaint himself thoroughly with the physicians of the staff (especially as to their ability and efficiency), with the equipment and the character of its service.

(D) Before the close of the year he shall, with the approval and consent of the staff of the hospital, select from the history-sheets written in regular daily routine by the candidates under his charge, twenty histories taken at random, and shall examine the same carefully.

(E) He shall make inquiry of the attending staff as to whether or not the service of the intern has been satisfactory, and make a report to the committee when the candidate under his charge has completed the necessary period of service, as to the manner in which he performed his duties—whether satisfactorily or otherwise—accompanied by his recommendation as to whether or not the candidate should be given the *cum laude* degree.

HOSPITALS

1. The hospitals in which service as an intern may be considered acceptable for the *cum laude* degree shall be selected by the committee on relations with other institutions, and be approved by the faculty.

2. Such hospitals shall have at least twenty beds.

3. The officials of the hospital shall be notified that such and such persons, whom they have selected as interns, are to perform their services also as candidates for the *cum laude* degree, and the assent of the officials to the arrangement must be secured before the service is entered on.

4. There must be on the staff of such hospital at least one physician who is a member of the faculty of Rush Medical

College—either intra- or extramural—unless exception be made by the vote of the faculty.

5. A list of the hospitals approved by the faculty shall be kept in the hands of the deans who will advise inquiring students whether any particular hospital is or is not included in the list.

The requirements imposed by these rules were not unreasonable for a *cum laude* degree which, it was planned, should be the equivalent of the master's degree (A.M., or M.S.), conferred by a college or university for one year of graduate work. I am inclined to think that they are somewhat too rigid an exaction, at least in the beginning, for a fifth year which is made a prerequisite for the degree of M.D., and, therefore, for licensure to practice medicine. The amount of routine work now demanded of the intern in many hospitals so consumes his time as to make it very difficult and often impossible for any but the exceptional student to prepare a thesis. This ought not, however, so to be. The intern should have time to study the cases assigned to him thoroughly and carefully, and also pursue exhaustively the study of some disease or condition as presented by some interesting case, or group of cases, to explore the literature relating to that topic, and to set down in orderly fashion the results of his investigation. No instruction or experience in his career as a student of medicine is so potent an educational measure as this one of independent creative work. As previously indicated, I believe it is possible to extend this plan of cooperation and affiliation to hospitals located in cities more or less remote from the medical school. In such case, also, the members of the hospital staffs selected to supervise the work of the intern should be made extramural members of the faculty of the school. Needless to say, no such appointments should be made of physicians simply because they are members of the staff of the hospital. They must be carefully chosen because of their known ability and willingness to instruct the student, and to direct his work carefully, and no hospital should be affiliated unless there are such persons on its medical staff. In most of the smaller cities such men are to be found, fundamentally as capable of high-grade work, in practice, teaching and research, as are many of the members of the intramural faculty. These men would find, in an intimate, vital connection with the medical school and in the work of instructing students, an inspiration and stimulus that would be to their advantage and that they would keenly appreciate. They should visit the medical school from time to time, attend an occasional faculty meeting and become acquainted with its ideals and methods. Their connection with the school should be recognized by the appearance of their names and titles in its bulletins or announcements.

There is no inherent difficulty in the plan of having two or three schools associated with the same hospital, interns from each working side by side, as they do at present in some of the larger hospitals, each intern under the supervision of some member of the staff who owes allegiance to the school from which the intern comes, and from which he is to receive his degree. Indeed, there are important advantages in having interns from two or more schools working side by side in the same hospital, with a common purpose, but stimulating and broadening each other's views and knowledge by the diversity of their previous education.

In these hospitals students in the earlier stages of the medical curriculum — that is in the long vacations succeeding the sophomore and junior years—could, with advantage to the hospital, as well as to themselves, serve as externs, performing the simpler duties in the wards and laboratories under the supervision of the staff and the older interns. These long, four to six months' vacations, under the custom which has prevailed since the preceptor became obsolete, are a sad waste of time and inertia. Under the four-quarter system in Rush Medical College, the students may, if they choose, continue in residence about ten and one-half months each year. In my observation of many students who have pursued this plan during the last twelve years, I have yet to learn of one who has been harmed physically, or otherwise, by continuous work during the four quarters of one or more years of his course of study.

The division of expense between the hospitals and any college with which it is affiliated should not be difficult of adjustment. The hospital, as a place for the care and cure of the sick, should bear the expense of its maintenance for that purpose. The medical school, as an educational institution, must meet any additional expense entailed by the use of the patients for teaching or research, over and above that which would be required to give the best possible service to the patient in the effort to restore him to health. By no sort of logical reasoning can it be concluded that it is a just obligation of the college to pay for free beds because the patients occupying them are used for clinical demonstration. It is the function of a charitable hospital to maintain as many free beds — free wholly, or in part—as its income will permit. The hospital, as an institution, is entitled to credit for benevolence just in proportion to the amount which it expends on the hospital care of its patients over and above that which they pay for such service. Credit for free medical service rendered belongs to the medical staff of the hospital and to the college furnishing the staff—not to the hospital as such. The staff should utilize as clinical material any and every patient in the hospital, be he pauper or pay patient, who does not object to being so utilized. Of course the interests of the medical school and every affiliated hospital are mutual; both are engaged in rendering service to the sick, and each should assist the other in friendly cooperation to secure the necessary endowments to carry on their work.

I am not unmindful of the difficulties to be encountered in securing the effective cooperation of hospitals and medical schools, along the lines suggested. Local jealousies among practitioners, keen rivalry between neighboring medical schools, parsimonious economy on the part of hospital boards, "ward politics" which dominate the control of many public hospitals, the lack of adequate endowment for both medical school and hospital — these and other hindrances to good work by both groups of institutions and, therefore, to effective cooperation, must be met and overcome.

It is because of the magnitude of these difficulties that great care and deliberation is necessary on the part of any medical school which proposes to make a fifth or intern year a compulsory addition to its curriculum. The diploma issued by any medical school should stand for thorough, careful education at every stage of the required course of study, and it should not be made to cover a fifth or intern year until the school can give to the student and to the world assurance of the same effective instruction, closely supervised under proper conditions, during this fifth year that is given during the preceding years of the curriculum.

THE RELATION BETWEEN PRACTITIONER AND INVESTIGATOR IN MEDICINE*

LEO LOEB, M.D.
ST. LOUIS

In the meetings of the Sections of the American Medical Association, we mean to record our work and accomplishments in the advancement of medical science, and our experiences in applying the facts which science has established at the bedside of the patients. This is the primary aim of our meetings. And yet it is well that there are provided certain occasions when we may interrupt our work for a short while and look backward to recognize the principles in our work and, perhaps, even to inquire into the conditions under which we are working, in order to remove difficulties and to achieve the greatest possible efficiency.

Our Section is one of those that represent, if we may thus express it, the pure medical science in contradistinction to the applied medical science, preponderating in the majority of the other sections. The Section on Pathology and Physiology is the meeting-place of those members of the Association that devote their time almost exclusively to investigation and to teaching. It might, therefore, not be inappropriate to discuss some of the relations as they actually exist between the investigator and the practitioner in medicine. When I speak here of investigator, I have in mind principally the specialist in the so-called fundamental sciences of medicine.

The time at my disposal does not permit me to treat fully of this subject. I have to omit all historical considerations. I cannot dwell on the increasing importance of science in modern medicine and the many contributions to medical science which we owe to the practitioner in medicine who, striving after the highest ideals, finds it possible, after hours of responsible and unselfish efforts in the interest of his patients, to devote a part of his day to the furtherance of medical science. I wish rather to restrict myself to the consideration of certain difficulties and misunderstandings which undoubtedly still exist in the relation between the investigator and the practitioner in medicine, in order to help somewhat in removing those difficulties and in making the common work of the practitioner and the investigator still more pleasant and fruitful. And even here I shall have to be brief, omitting any detailed discussion, trusting that my remarks will rather stimulate a discussion of these problems than present a final statement of the issue.

There can be no doubt that certain difficulties exist; they are noticeable in the medical schools, in the institutions for general or specialized medical research; they can be seen among the profession at large. In the medical school, the point of controversy is not infrequently as follows: The clinicians, objecting to a certain way in which physiology, pathology and pharmacology are taught, demand that these branches of science be considered as a direct preparation for clinical work, and that only those parts of the theoretic sciences which are of special interest to the clinician be considered more in detail. The teacher and investigator, who is inclined to favor the field of general physiology or pathology, is especially liable to call forth criticism on the part of the clinician.

Let us now enter into a critical analysis of this clinical point of view. We may at once concede that a medical school is a school of applied science, intended for the training of men who are to be, principally, not investigators, but practitioners, who apply scientific experience to the solution of practical problems in the life of the community. Just as in an engineering school mathematics and physics are taught with a view of preparing the student for the building of electrical apparatus, of bridges and other structures, just as in an agricultural department chemistry is taught so as to prepare the student to cope with the problem of soil fertility, so the student of medicine ought to be taught physiology, pathology and pharmacology in such a way that he can both diagnose disease of the various organs and understand the essential characters of disease, and at the same time appreciate the principles of treatment.[1] Apparently the analogy between the principles of instruction for the medical and engineering student is perfect, but in reality there exists an essential difference to which, perhaps, due consideration has not always been given.

The engineer is given a definite problem which he knows he can solve in accordance with the well-known principles of his science. Nothing unusual or impossible is ordinarily demanded of him. He is at once in a position to recognize whether or not his task can be accomplished, and if it should not be feasible he will decline. There is no uncertainty about the character of his work. Either it can or it cannot be done. Furthermore, the number of variable factors the engineer has to consider in his work is relatively small as compared with those in the work of the physician. The engineer is presented with a physical or chemical problem, the physician with a biologic problem. And it is well understood how infinitely larger is the number of variable factors in the latter kind of problems.

Thus it is brought about that in a very large number of cases the physician cannot even state offhand whether the task assigned to him can be accomplished or not. As a result of analysis and investigation of the conditions in many cases he will find that, while certain parts of his problem are typical model factors, other parts are made up largely of unknowns. From the beginning, therefore, the work of the physician is that of a biologic investigator and not merely that of a technician brought face to face with a certain routine work. He has to investigate first the character of his problem, whether it is an old or a new problem, and then he will find in the majority of cases that there is, at least in part, a new problem involved. He cannot refuse to treat a patient because there is a new and, so far, unsolved problem involved. An engineer could refuse his services in such a case. A physician cannot. The patient desires and needs help. The physician, therefore, must marshal before him the known parts of the various branches of medical biology, and then he must decide in which direction a solution of the new problem may be attempted. In many cases he will find no indication for any procedure. He is in the dark as to the best mode of attacking the problem. But, however the situation may be, the principal requirement is that he be perfectly clear about the character of the problem he has to face, what part of it has been solved and what part remains unsolved. This process of thinking must be in the highest sense scientific. Very much is demanded of him in the clear analysis of complicated biologic facts. The physician must face his problem in the spirit of a scien-

* Chairman's address before the Section on Pathology and Physiology of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

1. The educational value of laboratory teaching is clearly stated in the excellent address by E. P. Lyon, Equipment and Instruction of the Laboratory Years, THE JOURNAL A. M. A., May 27, 1911, p. 1536.

tific investigator of the highest type. But here a great lack, due, perhaps, to insufficient training, becomes apparent.

It is just here that the physician often fails; he is not able to circumscribe sharply the known and the unknown parts of his problem. He usually assumes that more is known than is actually the case. In other words, he frequently does not recognize the great number of variable factors that present themselves. He proceeds in a routine manner, ignoring the unknown variables in his diagnostic and his therapeutic work. How much better it would be if he should recognize his limitations and acknowledge that so far he can act as a technician, curing or giving definite relief, and from here on he has to act merely as a friend, sustaining the patient in his suffering through his sympathy to the best of his ability! And in this latter capacity as a friend, again a knowledge of biology in the broadest sense will be a most valuable asset for the physician. It will supply him with the philosophic point of view which enables him to elevate the spirit of his patient, to make him as much as possible forget his own difficulties by leading him into a consideration of a larger world of which he forms a part.

We see thus how essential it is for the physician to be truly trained in the spirit of investigation and scientific analysis and how emphatically his daily task calls for a philosophic conception of the universe, a conception which can be best supplied to him through a broad study of biology and the natural sciences in general, of which medical science forms only a part. There is another difference between medicine and other applied sciences. Owing to the enormous size of the unexplored field, to the multiplicity of variable factors and to the most diligent search of many investigators, frequent corrections and additions are made to the fundaments of our science every year; light is suddenly shed on hitherto dark fields, and in consequence our views not rarely have to be modified, or even to be changed radically to a much greater extent than in the engineering or agricultural sciences. The practitioner has to adapt his diagnostic methods, his conception and even his treatment of disease to this development of our theoretic knowledge. He can do so only if the scientific training he received as a student was broad. The more his training was merely technical, directed only to the application to practical medicine of the scientific principles evolved at the time of his student years, the less will he be prepared to follow the further development of medicine, the more stereotyped will be his activity in the practice of medicine and the more liable will he be to apply occasionally methods which in the end might prove injurious rather than beneficial.

It is to some extent a chance effect of historic development in physiology and pathology and pharmacology which determines what is deemed essential in the curriculum of a medical student. Thus, in pathology the teaching is to a great extent anatomic and histologic; in physiology and experimental (or physiologic) pathology the teaching of the mechanical factors in disease is very much favored, as, for instance, the dynamics of the circulation and mechanism of the heart action, while the chemic and toxicologic pathogenic factors which are all important, but the study of which is of more recent development, are, perhaps, not yet quite considered as of equal rank. Courses in experimental pathology, especially, seem to emphasize the mechanical factors in disease; on the other hand, I believe that an experimental study of general pathology must have a broadening effect on the mind of the student.[2] Much of that which is apparently of purely theoretic interest to-day will be of great practical interest to-morrow. As an example, I might cite the laws of surface tension and the practical application made of them in diagnosis in recent years. The investigator and teacher who to-day will deviate somewhat from the usual field not rarely lays the foundation for that which will become routine to-morrow, and he may often be more able to impart to his students the spirit of scientific analysis and an appreciation of the theoretic foundation of medicine than another teacher who gives to his students the more conventional course. I fully concede that the student must be well prepared to understand all problems which the clinical study of medicine offers and, also, that he ought especially not to neglect the study of the mechanical factors in disease, but I would on the other hand plead for a much greater consideration of the more general conceptions of biologic science in its relation to medicine, and for great liberality in making it possible for the teacher to express his individual tendencies in scientific medicine.

I now turn to the relation between the practitioner and the investigator in research institutions, and here I must be still briefer. Here again the practitioner, the clinician, not infrequently is dissatisfied with the attitude of the investigator. In the first place, the practitioner feels that he does not receive sufficiently direct assistance in his work from the laboratory worker. He expects the latter to be at his disposal whenever he wishes help in the diagnosis of the disease, and in other ways in the study of the case during life and especially after death. Secondly, he is inclined to make the criticism that the work of the investigator is too theoretic, has not sufficient bearing on those aspects of disease in which he is especially interested and does not bring immediate practical results.

Inasmuch as the medical department of a university represents a combination of a teaching and a research institution, the difficulties encountered in the research institutions may be found to exist in the medical schools. In the first-named special research institutions, it is especially the pathologist against whom the criticism is directed. There is no doubt that the clinician needs assistance and that he himself is usually not in a position to carry out certain pathologic and biochemic examinations which would aid him much in the diagnosis and the treatment of the disease. It appears, however, very doubtful to us whether it is desirable that the professor of pathology and biochemistry or the director of the laboratory, essentially intended for the furtherance of scientific knowledge and research in medicine, should undertake such work. He would be obliged to scatter his efforts and could not accomplish his essential tasks. During a relatively long period in the history of pathology the careful study of material obtained at autopsies was the principal field for research in pathology. These investigations laid the foundation for our knowledge of pathologic anatomy and histology. At that time the cooperation between clinician and pathologist at the post-mortem table was equally in the interest of clinical medicine and pathology.

Although considerable work undoubtedly remains to be done in this direction, still the principal structure of

2. It may, perhaps, be of interest to mention that in a course in experimental pathology which I prepared and gave in 1904 and in the following years I embodied much work in general pathology. I would also like to refer in this connection to the address of Dr. Yandell Henderson, the chairman of this section at the Los Angeles meeting of the A. M. A., THE JOURNAL, Sept. 9, 1911, p. 1857.

this part of pathology has been erected, and new fields of research that have already given important results and promise still greater results have since been opened, and now claim the best efforts of the investigator. Under these conditions it seems, in general, preferable that this part of pathologic and biochemic work, which is in the main subsidiary to the practical needs of the clinician, should be entrusted to special workers. There is no doubt that here, also, results of interest to science may be obtained, so to say, as a by-product, but this work is not primarily undertaken from this point of view and such results cannot be counted on as certain. Whether these workers in what, in a wider sense, we might call clinical pathology ought to be attached to the department of pathology or of clinical medicine depends on the special character of the different institutions. As a general rule, the clinical pathologist ought to be connected with that department which can use, to the greatest advantage in science, the data obtained through his efforts.

While we thus find that the demand for scientific assistance on the part of the practitioner is justified and that a way can be found to satisfy his needs without impairing the work of the investigator, I believe that the solution for the second difficulty, expressed in the criticism that the work of the investigator is too theoretic, must be looked for in another direction. We all desire results that diminish the suffering of mankind, but they are not best obtained by decrying the efforts of the worker who follows apparently purely theoretic lines of research. I believe that the urgent demand for practical results in scientific research ought to be counteracted through a brief course on the development of human knowledge, which each medical student should receive at some time early in his studies. Perhaps a few lectures given on that subject in connection with the course on biology or physics, in the first or second year of college, or perhaps a few introductory lectures given with the course in chemistry or physiology in the medical school, and a few additional lectures on the modern history of medical science given in the third or fourth year might produce the desired effect. Such lectures might create an appreciation of the fact that although progress in science is continuous and connected, yet the making of a valuable discovery depends to a great extent on a certain lability of thought in the mind of the investigator.

In definite instances the element of happy accident has, of course, to be taken for granted. Individual peculiarities on the part of the investigator in the selection of problems and in the way of attacking the problem must not only be tolerated on the part of the practitioner, but must even be encouraged. History has shown that the development of science is continuous and connected, but it has also shown that this development does not, usually, take place in such a direct and straight line that we are in a position to foretell its course. Much depends on the personality of the investigator. It is only the highest type of investigator who may appreciate in which direction the solution of a problem may be expected, and he, also, frequently depends on the aid of favorable constellations in the development of his work. Dictation from the outside will lead to the use of stereotyped methods which have given some results in the past, but may not be adapted to new problems. Frequent criticism on the part of the outsider is liable to dampen the enthusiasm which is a valuable asset in the work of the investigator.

It has been repeatedly pointed out in the past how the most far-reaching results, also from a practical point of view, were obtained through often long and tedious work of a very theoretic character, apparently without connection with medical practice. We might even assert that the practical problems given by the practitioner are frequently of such a specialistic character, restricted in their general significance, that with some preparation, the practitioner might best be suited to undertake such investigations himself. The more far-reaching results which benefit wider circles are usually the outcome of biologic, physiologic or chemical investigation originally undertaken without a direct view for practical application. We may assert that in the natural course of its development a branch of science may be treated purely from a theoretic point of view. In the course of this theoretic development, the point will be reached at which the possibility of practical application will become apparent. Not only the general research laboratories of the medical department, but also the research institutions devoted to the pursuits of special problems must shape their policy in accordance with these facts and encourage investigation on the broadest possible basis; otherwise they may undermine their most valuable source of intellectual supply.

But we must go even farther and state that the obtaining of results, practical in the sense in which this term is usually applied, is not the only aim of investigation. It is well understood that physics, chemistry and biology are not cultivated merely from the point of view of the discovery of methods of use in the daily life. They all serve besides a philosophic purpose; they give us an understanding of the universe and of man's rôle in the universe. What holds good of zoology and botany holds good also of physiologic and pathologic study. They are at least as important for our philosophic understanding of life as botany and zoology. And this applies not only to physiology and pathology in general, but even to special branches in these sciences. They all have to serve a double purpose, namely, to contribute to the solution of a practical problem and to our understanding of life in all its physical, intellectual and moral aspects. There does not need to be any dispute as to how far one aspect of investigation ought to be favored at the expense of the other. Both sides of investigation go in reality hand in hand and, as we pointed out, the road of purely theoretic research will ultimately lead, also, to the most far-reaching practical results. Theoretic investigations in physiology and pathology are therefore necessary as instruments with which to obtain practical results which can be directly applied in the treatment of disease. Theoretic investigations are also necessary, as we pointed out, in order to satisfy our philosophic needs. If we oppose here practical and philosophic aims, we must recognize that such a division does not altogether do justice to the real state of things, for investigations in physiology and pathology are of a practical character in proportion as they subserve philosophic needs.

And it is the practitioner in medicine, daily confronted with the experience of the greatest physical and mental suffering in patients asking for his help, who will appreciate the assistance which a philosophic study of the sciences will give him; it will sustain him in his daily difficult task, increase his sympathy with human suffering and add to his power to give consolation and strength to his patients by raising their thoughts to higher spheres. The investigator, in his turn also, depends to some extent on the moral support of the general prac-

titioner who is not directly connected with a medical-teaching or research institution. His task will be made more easy and more fruitful if he finds a sympathetic understanding on the part of the practitioner. Furthermore, the practitioner might come into closer touch with the work of the investigator, adopting the latter's attitude of mind in those cases in which he is confronted with new situations and new problems in his practice, and at the same time he might add to his usefulness and to the dignity of his position by becoming a source of intellectual and moral help to the community by fortifying himself in his difficult task through the philosophic study of science, and by communicating the spirit of science to the circle of those who are under his care. The realization of this conception will effect a very close union between investigator and practitioner. The physician can be and ought to be thus a bearer of the message that science has for mankind.

Barnard Free Skin and Cancer Hospital.

EXPERIMENTAL DEVASCULARIZATION OF SEGMENTS OF INTESTINE WITH AND WITHOUT MECHANICAL OBSTRUCTION *

J. SHELTON HORSLEY, M.D.
AND
C. C. COLEMAN, M. D.
RICHMOND, VA.

Any experimental work dealing with intestinal obstruction as one of its chief features requires a preliminary statement of the present status of obstruction. The exact cause of death in obstruction of the bowel has never been definitely determined. The three theories advanced are: (1) the nervous theory, which holds that the nervous system is affected in somewhat the same way as in shock; (2) the bacterial theory, which holds that death is due to the bacteria contained in the obstructed intestine; (3) the toxemia theory, which holds that death in obstruction is due to some perversion of intestinal metabolism. Metabolic toxins may be formed in the epithelium of the intestine, or the mucosa may permit the direct absorption of peptones and products from the intestine that are normally changed by the epithelium before being discharged into the circulation. The nervous theory has few advocates, but the bacterial theory and the theory of toxemia have many champions.

RECENT EXPERIMENTAL WORK

It is not our purpose to review the literature on this subject, which can be found in a number of recent articles, particularly those by Hartwell and Hoguet,[1] Murphy and Vincent,[2] and J. W. Draper,[3] to say nothing of the German and French work, which in the last few years has been quite extensive. We desire, however, to call attention to some of the deductions made from recent experimental work. It does not seem probable that the chief cause of death in intestinal obstruction is a lesion of the intestinal mucosa as Hartwell and Hoguet believe, though this may be a contributing cause. If a lesion of the mucosa is chiefly responsible, it would be difficult to explain why the symptoms of ileus do not develop after any ulceration of the bowel, or after any wound in which a raw surface is necessarily left in the mucosa, as in intestinal resection. It has been pointed out by Roger and Garnier and by others that the normal products of intestinal digestion, particularly the peptones, are poisonous if directly injected into the circulation. The intestinal mucosa exerts some chemical change on this material during the process of absorption, which not only renders it non-toxic, but converts it into nutrition for the body cells. Experiments, then, which depend on the fact that material taken from a strangulated loop of intestine and injected into an animal produces illness and death, do not by any means prove that this material is peculiar to the strangulated intestine. The normal products from the normal intestinal tract when injected will also produce marked toxic symptoms and death.

It is generally recognized that a high intestinal obstruction, within 12 inches of the pylorus, is more rapidly fatal than an obstruction low down in the ileum. This is classed by Draper, Roger and Garnier and others as proof of the fact that some vital secretion of the duodenum and no bacterial product is the toxic substance in obstruction, for it is well known that the upper part of the intestinal tract contains fewer bacteria than the lower part of the ileum. The experiments of Murphy and Vincent emphasized this difference in bacteria in the duodenum and the ileum as they found that when material from normal unobstructed bowel of cats was injected within the peritoneal cavity, necropsy revealed a peritonitis which corresponded with the level of the intestine from which the material was taken; that is, the most marked peritonitis was found when the contents of the ileum were used and the mildest when the contents of the duodenum were injected. This does not sustain the theory that the toxic substance is due solely to bacteria, for a low obstruction with a large amount of bacteria should be more rapidly fatal than a high obstruction with a small amount of bacteria.

The fact that the toxic material of obstruction can be reproduced in a section of removed intestine, as was done by Murphy and Vincent, does not exclude the possibility of this material being formed by the cells of the intestinal mucosa. In pathologic conditions of the thyroid gland, as hyperthyroidism, the toxic products may be prepared from the gland after it has been removed and when injected reproduce to a large extent the symptoms of hyperthyroidism. In like manner, a toxic substance might be formed in the intestinal mucosa and extracted after the bowel had been removed from the body, or might be produced by body heat and devascularization, which would be the condition of the intestinal loop placed in an incubator. The careful work of Murphy and Vincent has thrown much light on obstruction, but the rapid death and marked symptoms which they report from intraperitoneal injection of the unsterilized material from an obstructed intestinal loop may be due to septic peritonitis. It is at least conceivable that the peculiar toxic product of acute ileus may be formed from the epithelium of the intestinal mucosa of the obstructed loop under the stimulus of a perverted circulation, of an excessive amount of bacteria, or of both. If toxic products sometimes occur in the thyroid under stimulation of excessive nervous impulses, we cannot dismiss the possibility of some stimulation of the mucosa of the intestine by excessive bacterial toxins or altered circulation causing toxic products here.

* Read in the Section on Pathology and Physiology of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

1. Hartwell, J. A., and Hoguet, J. P.: Experimental Study of High Intestinal Obstruction, Am. Jour. Med. Sc., March, 1912.
2. Murphy, F. T., and Vincent, B.: Experimental Study of Cause of Death in Acute Intestinal Obstruction, Boston Med. and Surg. Jour., Nov. 2, 1911.
3. Draper, J. W.: Experimental Intestinal Obstruction, THE JOURNAL A. M. A., Oct. 21, 1911, p. 1338.

AUTHORS' EXPERIMENTS

Our experiments were originally undertaken with the idea of determining, if possible, the difference in the effect on an animal when devascularized segments of intestine were obstructed at both ends and when such segments were unobstructed and their products allowed to flow freely into the normal bowel. As the work proceeded other problems arose, such as the ultimate fate of the devascularized segment, the cause of death in obstruction, and the absorption of the toxic material. While no attempt has been made to cover such large subjects as the last two, we have noted everything we could in our experiments that might have any bearing on these features of intestinal obstruction.

TABLE 1.—SEPARATION OF MESENTERY WITH TAPES ON DEVASCULARIZED INTESTINE

No. of Dog	Number of Inches of Intestine Devascularized, and Operative Notes	Postoperative Notes	Length of Life After Operation	Post-Mortem Notes
1	Eight inches. No omentum wrapped around devascularized segment.	Dog looked sick twenty-four hours after operation; abdomen distended; respiration rapid.	Died after 36 hours.	Large amount of bloody fluid; bowel proximal to tapes greatly distended; omentum adherent to abd. incision but not to intestine; segment of bowel black, jelly-like, with large perforation near proximal tape.
2	Two inches. Omentum wrapped around segment of bowel and fastened with silk sutures.	Dog apparently well for four days; for three days quite sick; then better for three days, when he became worse.	Died after 14 days.	No free fluid but coating of lymph on peritoneum; bowel proximal to tape greatly distended, distal firmly contracted; segment of bowel thickened and contracted and surrounded by densely adherent omentum.
4	Two inches. Operation same as in Dog 2.	Dog appeared very sick from time of operation.	Died after 48 hours.	Large amount of free bloody fluid, marked distention of proximal bowel, contraction of distal; omentum adherent to abd. wall but not to bowel; segment black, jelly-like; large perforation.
5	Two inches. Operation same as in Dog 2.	Dog did well for three days, then appeared very sick for one day; again seemed better until two days before death.	Died after 13 days.	No free fluid; no distention of intestine either above or below tapes; omentum firmly adherent to segment, which showed but little change. The coats of this segment are somewhat discolored and swollen but sharply outlined. Evidently the omentum has preserved the nutrition of the devascularized intestine.
8	Two inches. Operation same as in Dog 2.	Dog appeared quite sick from time of operation.	Died after 3 days.	Small amount free bloody fluid; proximal bowel distended; omentum adherent to segment of bowel, which was dark, reddish and thickened.

We have done ten experiments, all of them on dogs. As far as possible the conditions under which each experiment was performed were similar. The dogs had no food for two days before being operated on, though they had water freely. All had water freely but no food after operation except two, Dog 9 and Dog 10, and to them food was also given freely for ten days before they were killed. The experiments were done under full ether anesthesia and with the usual aseptic precautions. Every effort was made to reduce the amount of pain and suffering to the minimum. In no instance was there any evidence of inflammation in the abdominal incision, the wound always healing by first intention. In all of these experiments the mesentery was cut after doubly ligating it in sections at the border of the intestine. In five experiments tapes were applied at each end of the devascularized segment to obstruct, but not injure, the bowel and so cut off its lumen from the healthy intestine (Table 1). In all experiments the last part of the ileum was used. In one instance, Dog 1, there was no effort to protect the intestine with omentum. Here the mesentery was separated for a length of 8 inches. The dog was quite sick from the time of operation and died within thirty-six hours. Necropsy showed that the affected intestine had become gangrenous and was mostly converted into a jelly-like mass which had ruptured and extruded its contents into the peritoneal cavity. In Dog 4 the experiment was similar to that in Dog 1, except that only 2 inches of the intestine were devascularized and the omentum was wrapped around this segment and fastened in position with sutures. The omentum also covered the tapes and extended over on the intestine on each side about 1 inch. This dog also was sick soon after operation and died within forty-eight hours. The intestine was converted into a jelly-like mass and had ruptured. The omentum was not adherent but was held in position by sutures. In the remaining three experiments in which tapes were used, 2 inches of the intestine were separated from the mesentery and the procedure was the same as in the experiment just described on Dog 4. In these three experiments Dog 2 lived fourteen days; the other two died, one, Dog 5, after thirteen days and the other, Dog 8, after three days.

Of the five that had no tapes one, Dog 3, died twenty-seven days after operation. Necropsy showed that this dog had obstruction just above the devascularized segment, where a large hair-ball had accumulated. The obstruction was caused by adhesions and volvulus. There was no perforation. In this dog and in two others of this series of five about 2 inches of intestine were devascularized according to the method mentioned above. Of these two one, Dog 7, was in excellent condition when killed and had apparently lost but little weight. The other, Dog 6, was considerably emaciated. Necropsy showed the intestines in Dog 7 in good condition. The nutrition of the segment was well carried on by the very adherent omentum. In Dog 6, killed twenty-two days after operation, necropsy showed no perforation; but the intestine was quite thin and gave evidence of malnutrition. In none of these three dogs was any food given after operation, so in order to test the nutrition of the bowel more thoroughly two other dogs were operated on by similar technic, except that in Dog 9, 4½ inches, and in Dog 10, 4 inches were devascularized instead of 2 inches. The omentum was wrapped round as in the other cases. These dogs received food, Dog 10 at the end of five days after operation, and Dog 9 at the end of eight days after operation. Each was then given food and water freely for ten days. In neither instance was there any indication whatever of obstruction and the dogs were gaining weight quite rapidly when killed.

In considering the points brought out by these experiments they may be divided into: (1) the nutrition of the devascularized segment; (2) the cause of death; (3) the absorption of the toxic products; (4) the practical deductions that may be applicable to clinical surgery.

NUTRITION OF DEVASCULARIZED SEGMENT

Of the five dogs in which the segment of intestine was devascularized and tapes applied, two died within

forty-eight hours. Of those that lived, one died after three days, one after thirteen days and one after fourteen days. Necropsy in Dog 2, that lived longest, showed that the intestine between the tapes was densely adherent to the omentum and had become thickened and contracted. Its coats were distinct and apparently well nourished, though slightly darker in color than normal. There was some distention of the intestine proximal to the upper tape. In Dog 8, which died after three days, the omentum was found closely adherent to the devascularized intestine. The intestine between the two tapes was very thick, dark red in color, somewhat distended and contained a brown, foul-smelling material. In Dog 5, which lived thirteen days, there was but little change in the segment of bowel, though the only nutrition possible must have come from the adherent omentum. In the dogs in which no tapes were applied the results were interesting. As has been mentioned above, in three of these five 2 inches of intestine were devascularized and in two 4 and 4½ inches were devascularized. In the last two food was given freely for the last ten days without any deleterious effect. All of these five dogs lived and were in good condition when they were killed, except Dog 3, which died from obstruction. The intestines of the others, including those that had food and in which 4 inches or more were devascularized, were in excellent condition and showed little evidence of lack of nutrition.

If the omentum becomes closely adherent it appears to be capable in many instances of nourishing the segment of bowel. If this does not happen the bowel becomes necrotic and perforates and the dog dies within a few hours of septic peritonitis. The question of dosage has much to do with these cases, of course, as segments of more than 2 inches would most likely develop devascularized segment when the lumen is unobstructed; or again, to the fact that the tapes cut off some nutrition from each end of the segment.

ABSORPTION OF TOXIC PRODUCTS

The dogs with tapes lived a much shorter time than those without tapes. If any peculiar toxic substance was formed in the gangrenous intestine it should apparently be swept on and absorbed if the lumen is unobstructed and should produce more serious symptoms than if the lumen had been closed with the mesentery severed. This, however, is not borne out by these experiments and the result seems to correspond with experiments of Murphy and Vincent, which show that this toxic material is not absorbed from the healthy mucosa. In our own experiments no attempt was made partially to obstruct the circulation of a loop of bowel, but in every instance the total circulation was cut off by double ligatures of the mesentery near the intestinal border. Consequently we have no observations on obstruction to the venous circulation only, which, according to Murphy and Vincent, seems so rapidly fatal.

PRACTICAL DEDUCTIONS

The view usually held that bowel with impaired nutrition can be easily permeated by bacteria has not been borne out in our experiments. In no instance did the dog die under three days except when perforation had occurred and the bacteria and other intestinal contents were thrown in an overwhelming amount into the abdominal cavity. In such cases death took place in a few hours.

A short segment of intestine in a dog, when deprived of its nutrition, if thoroughly protected by omentum, may be nourished through the omentum and maintain its integrity. It has been taught that if even a small portion of intestine becomes detached from its mesentery, gangrene and a fatal result necessarily follow. In a dog this does not appear to be true. The occurrence of mechanical obstruction along with gangrene, as would occur in many clinical cases such as strangulated hernia, intussusception and volvulus, adds a great deal to the gravity of the situation. Devascularization of a segment of bowel without obstruction, as when the intestine is severed from its mesentery by a wound, seems much less serious than when there is obstruction. If such a segment is short and is protected by omentum, the condition appears to be compatible with recovery.

TABLE 2.—SEPARATION OF MESENTERY WITHOUT TAPES ON DEVASCULARIZED SEGMENT

No. of Dog	Number of Inches of Intestine Devascularized, and Operative Notes	Postoperative Notes	Length of Life After Operation	Post-Mortem Notes
3	Two inches. Omentum wrapped around segment and sutured intestine.	Dog looked sick day after operation; recovered and was better until two days before death; no food.	Died 27 days after operation.	Dog much emaciated; no free fluid in abdomen; segment adherent and in a partial volvulus, causing mechanical obstruction; segment well nourished; intestine above segment dilated and filled with hair for about two inches.
6	Two inches. Omentum wrapped around segment and sutured intestine.	Dog did well; never very sick; no food.	Killed 22 days after operation.	Dog much emaciated; segment very adherent; bowel proximal to segment dilated and contained fecal matter; distal bowel contracted, but contained fecal matter also; segment dilated, very thin, but no perforation.
7	Two inches. Omentum wrapped around segment and sutured intestine.	Dog never appeared sick; no food.	Killed 21 days after operation.	Dog fairly well nourished; segment buried in mass of adherent omentum and mesentery; segment well nourished; no evidence of obstruction.
9	Four and a half inches. Omentum wrapped around segment and sutured intestine.	Dog never very sick; no food for eight days; then food given freely for ten days.	Killed 18 days after operation.	Dog in fair condition; omentum adherent to segment; otherwise there were few adhesions; vessels in adherent omentum much enlarged; nutrition of segment apparently normal; no evidence of obstruction.
10	Four inches. Omentum wrapped around segment and sutured intestine.	Dog never very sick; no food for five days; then food given freely for ten days.	Killed 15 days after operation.	Dog in fair condition; omentum adherent to segment; otherwise very few adhesions; vessels in adherent omentum were enlarged; nutrition of segment good; no evidence of obstruction.

such a large amount of toxic material and be such a tax on the nutrition supplied by the omentum that a fatal result would follow more regularly.

THE CAUSE OF DEATH

In the series of Table 1 death is due either to septic peritonitis or to obstruction of the bowel. Septic peritonitis resulted fatally in a few hours. In the devascularized intestine without tapes, that is, without mechanical obstruction, there was no perforation. This may be due to the fact that saprophytic germs form gas and produce marked distention in the segment that is closed; or that the normal intestinal contents sweep away some of the excessive bacteria and toxins of the

THE INJURIOUS EFFECTS OF THE X-RAY AS A THERAPEUTIC AGENT*

A. RAVOGLI, M.D.
CINCINNATI

Physicotherapeutics in recent years has made wonderful progress through the discovery of new agents, and dermatology more than any other branch of medicine has profited thereby. It comprehends phototherapy, Finsen, photochromotherapy, radium therapy, high-frequency current, fulguration and roentgenotherapy which deserves a great place in medicine. Nobody would or could diminish the value of the great services rendered to medicine by the application of the *x*-rays. They are firmly established as a therapeutic factor of the greatest power.

It is undeniable that the *x*-rays have certain chemical properties, which in their early applications and even to-day in the hands of inexperienced practitioners resulted injuriously and in some cases really disastrously. Nearly every one who had to do with *x*-ray applications suffered some alterations of the skin, hair and nails, which they were compelled to nurse for years, if indeed they have ever healed up. This prompted the use of shields to protect the operator and the parts of the body of the patient which were not to be exposed. The best means is found in lead plates.

PHYSIOLOGIC ACTION

The peculiar chemical action of the rays is a radio-active one and difficult to explain. It produces a reaction of the skin, whereby the biochemical properties of the cells are destroyed. The therapeutic action is the result of this change induced in the cells. If a mouse is exposed to the *x*-ray for a short time, it loses its hair, but if the rays be continued till erythema is produced the animal dies. In man after eight or ten doses of 3 *x*[1] for a short duration an erythema is produced, which lasts for some time, disappears and leaves a brown pigmented discoloration. An early reaction may occur after 1½ to 3 *x* in two or three days. It is not due to a peculiar individual susceptibility or to a more delicate condition of the vascular system of the skin. The reaction sooner or later takes place in everybody so exposed, as a result of the necrosis of the epithelial cells of the horny layer, and of the action on the walls of the capillaries and small arterioles of the skin. That some patients have idiosyncrasy against the *x*-ray is erroneous.

The first alterations are shown in the hair, as Williams and Bogrow[2] have first described. After a few applications of the rays to parts covered with hair, the bulb of the hair changes, assuming the shape of a brown pigmented cone. When applications are continued the hair falls off, the bulb and the pigment disappear; some hairs are broken, some are in the way of regeneration. The alopecia from *x*-ray resembles that due to alopecia areata. Yet no parasiticide action in *x*-rays has been proved. This action on the hair has been utilized for epilation purpose in cases of extended hypertrichosis, and in the treatment of tinea favosa and trichophytina, and in sycosis barbæ, when the removal of the hair is necessary to obtain the recovery. Yet it carries with it the danger of radiodermatitis and of permanent alopecia. In some hospitals in Europe, where large numbers of boys and girls have to be treated for favus capillitii the *x*-rays are used quite extensively with great benefit, but always with great fear and once in a while with permanent loss of the hair. The same necrotizing effect which causes radiodermatitis on the normal skin affects efficiently epithelial neoplasms of the skin, causing destruction of their cells and consequently their reabsorption and disappearance. This beneficial action is displayed in all cases of epithelioma of a vegetating nature, and also in the ulcerated sort, but not in those cases in which the edges are very hard and callous. In the latter cases with the *x*-ray treatment an improvement is obtained, but nothing more. On persisting with the rays under such conditions, the disease takes on an invading character and gangrene sets in with more rapid destruction. In these cases it is best to stop the rays and apply radium.

The same results have been noticed in the treatment of lupus, which is beneficially influenced by the rays; the ulcerations heal up easily, but in order to remove the hard deep tubercles the Finsen light must be resorted to, or else applications of radium. Roentgenotherapy is also applied in cases of deeply seated tumors, not with the idea of obtaining a cure, but in order to check somewhat their course and diminish the pains. In some cases it is used as a preparatory treatment for a surgical operation; at other times it is used after the operation with the intention to destroy all infectious foci which may have escaped the surgical knife. It has been advised in stubborn cases of eczema and psoriasis. It has been used in chronic inflammatory infiltrations of the joints, in elephantiasis, in enlargement of the glands. It has been used with benefit in tuberculous lesions, not only of the skin, but also of the deeply seated tissues, especially in children. In granuloma fungoides, leproma and rhinoscleroma it has been found a valuable therapeutic agent, and recently Pellizzari[3] has found it useful in the treatment of the granulomas of the nose and palate caused by boubas. This treatment has been found in those diseases the only means, if not to effect a cure, at least to diminish the sufferings and prolong life.

In the *x*-ray there is a radio-active action capable of causing reaction which destroys the life of the pathologic cells and, if continued, also of the normal cells. This is what produces the injurious effects, which we know under the name of Roentgen dermatitis, or commonly the *x*-ray burn. This dermatitis must be divided into three stages.

The first stage somewhat resembles sunburn—a diffused redness with enlargement of the blood-vessels accompanied by itching and a burning sensation. In the face the affection may invade the lips and the mucous membrane of the cheeks and of the oral cavity simulating a stomatitis. The most prominent injurious effect on the skin is the enlargement of the blood-vessels. It seems that the rays have a direct action on the walls of the capillaries and of the small arteries, diminishing their elasticity. When the dermatitis is repeated or has lasted for some time, the blood-vessels remain so enlarged. The radiodermatitis may assume a form of mild chronic reaction lasting for a long time. This may cause an atrophic condition of the skin, which with the dilatation of the blood-vessels causes a hideous and irreparable injury to the skin. One of the many cases of the kind I have seen was in a young lady, who had had her face treated for a stubborn eczema with the *x*-ray, and the whole chest was affected with chronic radiodermatitis.

* Read in the Section on Dermatology of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

1. *X*-ray units.

2. Bogrow: Ueber einige Veranderungen der Haare nach Roentgenization, Russ. Ztschr. f. Haut. u. Ven. Krankh., xvii; abstr. in Monatsh. f. prakt. Dermat., 1909, xlix, 68.

3. Pellizzari, C.: Inst. Fototerapico di Firenze, 1912.

causing diffused atrophy, with dilated blood-vessels of the skin.

Indeed, in some cases of eczema treated with the *x*-ray the eruption was not improved and some parts of the skin attained a high degree of hypersensitiveness, while other parts began to show signs of third-degree reaction. In a general way an ordinary first-degree radiodermatitis lasts from three to twenty-one days, leaving some pigmentation of the affected skin.

When the *x*-rays have been applied for a longer time and persistently, a second-degree burn may occur, with the formation of blisters on a brownish-red and badly swollen skin. In one patient who had been treated for an eczema of the hand, after ten exposures to the rays prolonged for ten minutes, a violent dermatitis developed with unbearable pain, and formation of deep blisters filled with brownish bloody serum. From this condition, although painful and more serious, the patient may recover in from three to eight weeks' time.

The third-degree *x*-ray burn is found when the ulcerative process begins; it takes a long time to heal and at times is very difficult to be brought to recovery. Every one of us has seen such unfortunate cases and some of us have even suffered excruciating tortures ourselves. To-day, fortunately, thanks to the better apparatus and to the better care of the operators, these unfortunate cases

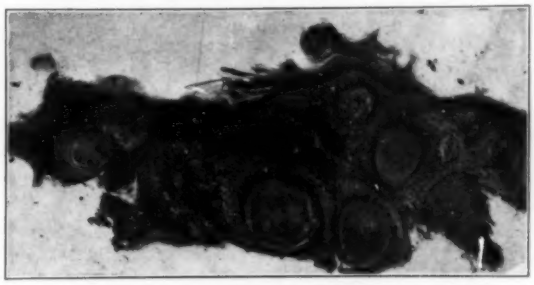


Fig. 1.—Low-power view of epitheliomatous pearls (made out of epithelial cells) formed in small nodules vegetating on a chronic *x*-ray dermatitis. The photographs were made by Dr. Goosmann.

are greatly diminishing in number. I saw one case of *x*-ray ulcer on the hypogastric region produced by *x*-ray exposure for the purpose of taking the radiograph of a stone in the bladder. Another *x*-ray ulcer I saw on the back of a patient's neck (he had been treated for furuncles), and another in a girl on the internal malleolar region.

Cases of this kind are related in great numbers in the medical journals, but it would be a long and tedious task to go over such an extensive literature. I shall refer to two cases in my own practice: one of lupus erythematodes, and the other of lupus vulgaris, which were rayed for a long time, with resulting *x*-ray dermatitis, which to-day is more hideous and deforming than the disease itself.

CASE 1.—A young Russian woman, aged 25, in good health, was affected with lupus erythematodes of the nose and cheeks in a discoid form. She was first treated in Europe before emigrating; then having another relapse she was treated in the United States. The treatment has consisted mostly in the application of the *x*-ray. She had a great many exposures to the rays, in round numbers about forty or fifty. When she came to my office, the lupus erythematodes was still bad and was complicated with the atrophic condition of the skin together with the telangiectasia characteristic of the chronic *x*-ray dermatitis. The skin was reduced to a dry parchment-like membrane, thin, white, scar-like, hard, brilliant, in some places darkly pigmented and studded with a net of enlarged blood-vessels. The cartilages of the nose seemed to be bare, as if they had been eroded, and were destroyed at the edge of the nostrils, causing deformity in the shape of the nose. On the atrophic skin, very small nodules had formed, brownish red, rising out from the depths of the tissues and covered with dry scaly crusts. Some of these nodules had been excised and prepared for biopsy. Under the microscope they proved to be small epitheliomas (Figs. 1 to 4). Roentgen rays in this case did not give satisfactory results, and the injurious effects, if they do not exceed those of the disease, are equal to them.

CASE 2.—Mrs. K. W., aged 40, German by birth, has been affected with lupus vulgaris of the left side of the face for twenty years. In these last years she was advised to have the *x*-ray applied. This was done often and persistently for ten to fifteen minutes twice a week. In the beginning it seemed that she was benefited, but on persisting in the use of the rays, a deep necrotic radiodermatitis developed. The

Fig. 2.—Pearl connected with surface epithelium.

process spread to the whole left side of the face, the auricula and the upper portion of the neck, producing several deep ulcers. At present the skin is very red, studded with red enlarged blood-vessels; in some places it is atrophic and shows cicatricial spots. The deep cicatrix has drawn the mouth so much that she can scarcely move her lips. In the center of the affection there remains a crateriform vegetating ulcer of the size of a silver dollar, elevated on the normal skin, which shows the character of a vegetating carcinoma.

The occurrence of malignant tumors after the application of the *x*-ray was noted by Kanitz,[4] Rowntree,[5] Dieffenbach[6] and many others. Indeed, the nodules formed on the hands as a consequence of the chronic *x*-ray dermatitis under the microscope proved to be typical carcinomas of the squamous kind. The production of carcinomatous growths in consequence of the *x*-ray is

4. Kanitz, H.: Budapesti orv. ujsag, 1909, No. 29; abstr. in Monatsh. f. prakt. Dermat., li, No. 3.
5. Rowntree, C. W.: Lancet, London, 1909.
6. Dieffenbach, W. H.: Med. Rec., New York, March 27, 1909.

used by Dieffenbach as an argument that carcinoma is not infectious, or of parasitic origin. It seems that new growths are formed where the normal formation of cells is impaired, either by trauma or by pressure, chronic inflammation or by constant irritation. These conditions influence the life of the cells to a constant proliferation and to the production of cells of their own kind. In my specimens pearls can be seen, formed by large scaly epithelial cells, which in this case act like a foreign body, and the other cells are involving them in order to protect the other tissues. The trophic nerves have also much to do in the healing of these burns, so much so that when the irritation is removed the restored circulation may change the cells into the normal condition; but when the vasomotor nerves have no more control of the circulation, necrosis continues and proliferation of cells induces carcinomatous growths.

The application of the *x*-ray has caused hyperkeratosis of the finger-nails. Wehrsig[7] reported his own case. In a surgical station he had charge of the *x*-ray department. After two months his hands showed an eczematous condition like that following the use of corrosive sublimate.

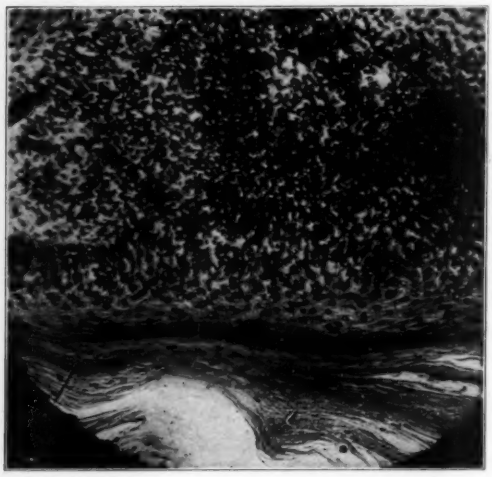


Fig. 3.—Infiltration of an epitheliomatous growth on an *x*-ray dermatitis.

This improved, but the finger-nails lost their glossiness, began to break and became thick and bulky; when the use of the rays was stopped the affection improved somewhat but very slowly.

Another dangerous consequence of the *x*-ray in tumors is the production of metastasis endangering the life of the patients. Councilman and Magrath[8] reported two cases of xeroderma pigmentosum in two sisters, respectively 8 and 10 years old, who were treated with *x*-ray and both died. The autopsy showed several lesions from *x*-ray and metastasis of generalized carcinomatosis.

Kanitz[9] reported a case of sarcoma in a lady 65 years old, in the left scapular region. After some strong *x*-ray applications a local reaction followed, with necrosis and gangrene of the tissues of the tumor associated with severe general toxic symptoms. Surrounding the first sarcoma, innumerous nodules of sarcoma type had formed. In my own practice an engineer, who had a carcinoma of the right arm near the elbow-joint, was treated with the *x*-rays and a deep phlegmonous inflammation resulted in gangrene of the whole mass. The patient had high fever and symptoms of general toxemia. The amputation of the arm was necessary to save the patient's life, but eight months thereafter he died with secondary cancer of the subaxillary glands.

From the above considerations we may conclude that roentgenotherapy is accompanied with more or less danger. This statement is not made for the purpose of discouraging anybody from the use of so powerful a physical remedy, which can bring about a great deal of benefit in a great many diseases, but only to call the attention to the great care which has to be used in giving the *x*-ray. In some cases the patients have been trusted to inexperienced office attendants, and the physician has noticed the danger only when dermatitis had already set in. When with the *x*-ray no improvement or no progress is obtained in the treatment of a disease, it is better to stop and change to some other method of treatment; otherwise danger is lurking and will soon be looming up.

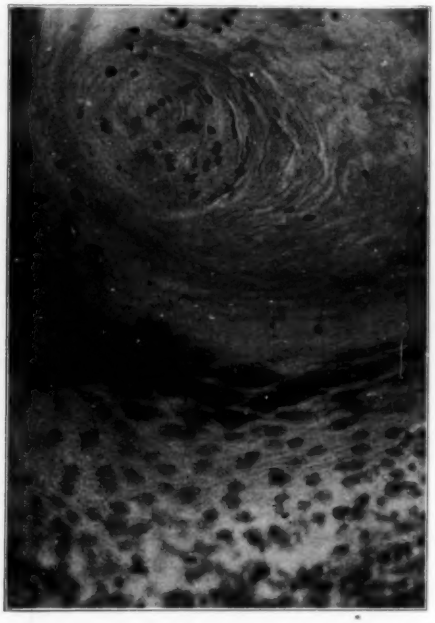


Fig. 4.—High-power view of epitheliomatous pearl; different types of epithelial cells.

When a radiodermatitis has begun, if it is of first degree, a bathing with 2 per cent. solution of aluminum subacetate or of sodium bicarbonate will diminish the itching and the burning sensation, and the skin in a short time will return to the normal condition. If the burn is of second degree with formation of blisters, the continuous bathing with soothing solutions, the opening of the blisters and the treatment as for any other burn will be sufficient. When ulceration sets in recovery is difficult. The best way for a speedy recovery is the excision of the whole ulcerated surface, and consequent surgical treatment.

No. 5 Garfield Place.

7. Wehrsig: München. med. Wchnschr., 1909, No. 32; abstr. in Monatsh. f. prakt. Dermat., 1, No. 5, p. 223.
8. Councilman and Magrath: Fifth Report of the Cancer Commission of Harvard University; abstr. in Monatsh. f. prakt. Dermat., ii, No. 6, p. 266.
9. Kanitz, H.: Schwere Toxämie und Metastasen bildung nach Roentgen-Behandlung eines Haut-Sarkom., Med. Klin., 1909, No. 14; abstr. in Monatsh. f. Derm. u. Syph., 1910, l, 271.

ABSTRACT OF DISCUSSION

DR. WILLIAM ALLEN PUSEY, Chicago: It is of course a truism that you can produce most disastrous effects with with *x*-rays or with any other agent similarly powerful by its overactive use. On the other hand, my experience has convinced me that you can use *x*-rays with as much freedom from danger as you can use any other powerful agent. All of the effects that Dr. Ravogli mentioned, I think I have seen, and yet, in spite of that experience, I still feel that *x*-rays constitute probably the most useful single means of treatment in the service of the dermatologist. I have long been impressed with the fact that the chief difficulty about the therapeutic use of *x*-rays in skin diseases is that the *x*-ray specialists know nothing of dermatology, and on the other hand, most dermatologists know very little about *x*-rays. Both of these facts have helped to bring *x*-ray treatment into disrepute. Many dermatologists find *x*-rays inefficient because they are afraid of their agent, and they fall short in their results because they are uncertain of their technic. Of course, I would not advise the careless use of *x*-rays, but I would urge their usefulness when carefully employed. I have never in my experience observed that *x*-rays produced an increased tendency to metastases in malignant growths, nor have I ever seen epithelioma stimulated by their use. I am just as willing to undertake to destroy epithelioma in the skin with *x*-rays as I would be by the actual cautery or by any powerful chemical or mechanical agent, and I have never seen any evidence to substantiate the statement that the danger of metastases is increased by the use of *x*-rays. I recently read a paper on the use of *x*-rays in selected cases of epithelioma of the lip. This paper gave the histories of thirty-six or thirty-eight cases of epithelioma of the lower lip which were treated by means of the *x*-ray more than three years ago and whose subsequent histories are known; in only two instances were there subsequent metastases under the jaw—approximately 5 per cent. of failures—which does not nearly approach the percentage of metastases occurring under the jaw after surgical interference. I do not advocate *x*-rays as a substitute for operation except in selected cases of epithelioma of the lip and I do not say that the use of *x*-rays diminishes the danger of metastases under the jaw, but I offer my experience to indicate that they do not increase it.

DR. M. L. RAVITCH, Louisville: There is no doubt that much of the disrepute into which *x*-ray treatment has fallen has been due to its improper application, either through carelessness or ignorance. I believe that Dr. William S. Gottheil was very much opposed to its use a few years ago, but that he has since been converted, though conservatively, to a realization of its value. The physician who uses the *x*-ray should also be a good dermatologist. I have employed *x*-rays for the past eleven years, and can recall only one instance in which I had a bad result. The patient was a woman suffering from tic douloureux. Her skin was unusually thin, and four minutes' exposure to the *x*-ray produced a severe dermatitis, but luckily she made a perfect recovery. I think certain individuals possess an idiosyncrasy for the *x*-rays just as certain others have for certain drugs, and it is the duty of the dermatologist to proceed carefully, giving the remedy in small doses, until the possibility of such an idiosyncrasy, which I think is due to anaphylaxis, is eliminated.

While the *x*-ray as a therapeutic measure has been abused, it has in that respect a similar history to tuberculin. Tuberculin was first heralded as a cure for all the ills on earth; then it was abandoned and condemned, and now it has come into use again and apparently found its proper place. So it is with the *x*-ray. Used conservatively and in selected cases, it is of great benefit.

DR. E. S. LAIN, Oklahoma City: During the past two years, two of our leading surgeons in Oklahoma have referred all their cases of epithelioma of the lip to me for *x*-ray treatment, although it was only a few years ago that they attacked me in our state association for venturing to use the *x*-rays in such cases. I regard the *x*-ray as one of the most important remedies in the hands of the dermatologist to-day. The abuses to which it was subjected are gradually disappearing, as all of us who have been working with it know. I have used it for over ten years; in some of my earliest cases I used it on epithelioma of the lip, though I now use it in such cases only if the glands are not involved. I have three cases of epithelioma of the lip so treated, which have now gone for more than three years without a recurrence. Some years ago, I adopted sole leather to prevent burns, but the use of this foul-smelling, septic material never appealed to me, and subsequently I adopted a moistened sterile towel or gauze pad, applying it over the radiated area, and since that time I have not had even a secondary dermatitis, excepting when intentionally made. I believe that the use of such a moistened towel or gauze pad increases evaporation, keeps the skin cooler, and absorbs the actinic rays, to which the burns are largely attributed.

DR. WILLIAM S. GOTTHEIL, New York: I think we do harm by calling these *x*-ray lesions burns. They resemble burns, but they do not act like burns and they are not burns. There is no relationship, in my mind, between a radial dermatitis with its progressive changes and its almost insuperable tendency to persist, and an ordinary burn, in which, after the noxious influences have passed off, the tendency is for repair. A radial dermatitis represents a peculiar, unknown change in the tissues and cells, entirely different from that produced in the traumatism resulting from the application of heat. In New York City we have two classes of radiotherapists; one, of which Dr. MacKee is an example, advocates the use of one tremendous dose. In making his application, Dr. MacKee employs various measuring agents to secure accuracy in his dosage, and tries to get the necessary therapeutic effect with one large dose. I do not know of anybody else who has had the courage to adopt this method. Dr. Geyser uses a tube that many others think is inefficient because it is too small. This simply illustrates the conflicting opinions that are held on this subject. I think the men who know most about it are the ones who absolutely refuse to use the *x*-rays for therapeutic purposes. They are thoroughly afraid of it. There is no doubt that you can get an effect from the *x*-ray, the same as from any other irritant, and what little therapeutic good I have seen from it, I am inclined to ascribe to that. I have seen cancer get well under a wet dressing, and I am convinced that what little good we do get from the use of the *x*-rays is simply due to their irritant effect, and that we can get in many other ways.

DR. JOSEPH ZEISLER, Chicago: While I continue to consider the *x*-rays as one of our mightiest therapeutic weapons at the present time, I believe that papers like the one presented by Dr. Ravogli are wholesome lessons, which ought to be repeated from time to time, reminding the profession at large of the injurious effects that may follow their application. I do not believe that there is a man living who has used the *x*-rays to any extent and who has not seen their use followed at times by some kind of damage. It is simply impossible to foretell what will happen in some cases after the use of radiotherapy. After subjecting a patient to a series of radiations and losing sight of him, he may subsequently return with a distinct atrophy of the skin. I was recently asked by a dermatologist in Omaha whether I considered it safe for him to attempt to remove an extensive growth of beard from the face of a young lady with the *x*-rays, and I replied by saying "Don't monkey with the buzz-saw." I have had a few cases of hypertrichosis which I have successfully treated with the *x*-rays, but this method should never be employed without constant regard for its great dangers.

DR. WILLIAM A. PUSEY, Chicago: While I am willing to admit that I have at times produced an *x*-ray atrophy, I can recall but a single case in which the patient resented the results of the *x*-ray treatment. That was a case of very extended lupus of the face which had existed for many years, and in which, after repeated exposures to the rays, a small, painful burn developed, which was afterward successfully treated by means of a plastic operation. The *x*-rays can be employed with reasonable freedom by one who knows how to use them. Dr. Gottheil said he has seen an epithelioma heal under a wet dressing. That may at times happen, but we should not confuse a covered epithelioma with a cured epi-

thelioma. At a meeting about a year ago one of the members said he had never seen a squamous-celled epithelioma healed by the *x*-rays. I recently showed the photograph of a squamous-celled epithelioma of the tip of the nose in which there had been no recurrence for over three years. I consider such a case one of cured epithelioma—not a healed-over epithelioma.

DR. C. A. MACMINN, Schenectady, N. Y.: After using the *x*-rays for six years for skiagraphic and therapeutic work, my experience with them has been very satisfactory. We would not, because the abuse of morphin and strychnin would lead to disastrous results, condemn those drugs, and the same is true of the *x*-rays. In many cases of epithelioma you can remove the lesion with the *x*-rays, with a smooth cicatrix or no resulting scar, such as you would have even with the best surgical measures. This applies particularly to lesions about the eyes and nose. I recall one case of lupus in which the lesion involved the side of the nose and the region underneath the eye. This man, when I first saw him about two years ago, had been unsuccessfully treated with ointments and cancer pastes, with radium, the ultraviolet rays and skin-grafting. I gave him three *x*-ray treatments a week until a reaction occurred, and then discontinued the treatments until it had subsided. After forty exposures, the lesions healed completely, leaving a smooth, healthy cicatrix, which remained that way for about eighteen months. About a month ago the patient had a slight recurrence on the lower eyelid, which healed after nine exposures. I do not know of any other method of treatment in a case of this kind in which I could obtain the results I did, lengthening the patient's life and giving him comparative comfort.

DR. A. RAVOGLI, Cincinnati: In reply to Dr. Pusey, I believe that I can recall several unfortunate cases in which the occurrence of metastases was at least hastened by the use of the *x*-rays. In one case, that of a woman with carcinoma of the breast, which was removed, I was subsequently requested by the surgeon to apply the *x*-rays for a number of recurrent nodules in the region of the scar. The result of the *x*-ray treatment was apparently good, but the patient died suddenly, and at necropsy an enormous reproduction of the cancerous nodules was found in the pleura. In another case, a man with a diffuse epithelioma on the dorsum of the hand, the *x*-rays were applied and there rapidly developed a severe inflammatory process of the hand, with a gangrenous condition, necessitating amputation; death occurred five months later as the result of a metastatic process in the axillary glands.

In another case of cancer involving the elbow the use of the *x*-rays was followed by an inflammatory process, with gangrene and death. My paper was presented as a caution against the occurrence of cases like these, which have been observed not only by myself, but by others. The production of an *x*-ray dermatitis in certain individuals can scarcely be ascribed to an idiosyncrasy, any more than we could ascribe a sunburn due to exposure to the sun's rays to an idiosyncrasy. As to protection against *x*-ray burns, I have used in the beginning the gutta-percha screen and have been very much disappointed with the results. Now for a long time I have been using lead plates. I have never used applications of a moistened towel or gauze, and will be pleased to give the method a trial. I believe that Dr. Gottheil is right in his contention that these lesions are not burns, but rather dermatites; still, they are usually referred to as burns. After using the *x*-rays for a certain length of time without benefit, I believe that a change of treatment, such as the application of the cautery or some other method, is advisable.

Motorcycle X-Ray Machine.—A new use for the motorcycle in time of war has been invented by a United States medical officer, namely, carrying a complete *x*-ray outfit, which may be used by physicians for examining injured persons on the battlefield. The dynamo, spark coils and all necessary apparatus are carried on the rear guard. The current is generated by connecting the dynamo to the motorcycle by means of a belt.—*Automobile Trade Journal.*

OBSERVATIONS ON KERATOSIS FOLLICULARIS

WITH REPORT OF FIVE CASES IN THE SAME FAMILY *

WILLIAM B. TRIMBLE, M.D.
Lecturer on Diseases of the Skin, New York University; Chief of Clinic, University and New York Skin and Cancer Hospital
NEW YORK

The immortal bard asks "What's in a name?" but if any one heeded him, that one certainly was not a dermatologist, as from time immemorial the investigators in this department of medical science have clogged up the literature with names to the point of redundancy. It is nevertheless necessary to have a proper cognomen for a definite entity, be that a state or disease, and this title refers to that malady sometimes known as "Darier's disease," "psorospermosis," etc.

A full description can be found in all the well-known text-books on dermatology; suffice it to say in this instance that the disease is a keratosis, follicular, as a rule, but not necessarily so.

It was first described in 1889, independently, by White of Boston and Darier of Paris. The latter author pointed out histologically some small, round, double contoured bodies, which he termed "psorosperms," hence

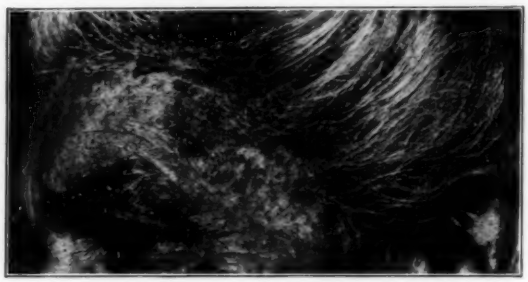


Fig. 1.—Case 1. Keratosis follicularis, showing lesions on scalp and temples.

the name "psorospermosis;" these he thought to be the etiologic factor. This was later disproved by Bowen, who found the so-called psorosperms to be degenerated epithelial cells, or cells in some state of transformation. So much for the historical sketch; now for the subject.

I have five cases to report, all occurring in the same family, covering three generations, a mother, three children and one grandchild. In this group there are three males and two females; the diagnoses have been confirmed by histologic examination except in the case of the grandson, but the lesions in his case are clinically distinct, though the case is a very mild one at this writing. To prevent confusion in the literature, it seems best to state that Patient 1, the mother of this family, was a patient on the Bulkley service of the New York Skin and Cancer Hospital about twelve years ago; and that Patient 2, one of the sons, has been under my care in the Fordyce clinic (University and Bellevue) for eighteen months.

CASE 1.—S. A., a widow, aged 63, an American engaged in housework, is not very clear in her memory as to her ancestors. The cause of death or whether they ever suffered from a

* Read in the Section on Dermatology of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

* From the Dermatologic Department of the University and Bellevue Hospital Medical College.

dermatologic complaint is unknown. The duration of the condition in her case is about twenty-five years. She has never had a serious illness, and at present is in excellent health and the steadiest worker in the family. She has given birth to three children, all alive and in good health, except that all three have keratosis follicularis. The main locations in her case were the scalp, forehead, temples and legs. She attached no significance to them, but applied to the New York Skin and Cancer Hospital about twelve years ago for a very marked and severe keratosis plantaris. She remained an inmate of this institution a great number of months, and was eventually relieved of the plantar keratosis by the Roentgen ray, used over a long period. At present the disease flourishes on the scalp and temples, as can be easily seen in Figure 1; she also has some scattered lesions on the back, face and chest. They are light brownish in color and vary in size from that of

Fig. 2.—Case 2. Keratosis follicularis, showing lesions on soles of both feet.

a pinhead to the head of a small match. The individual lesions are rounded off on top and are neither flat nor acuminate. They are so closely set in some places that they appear to have coalesced, and where this has occurred they give the appearance of an aggregation of small papilloma. The disease has invaded the auricle, and in this location and along the edges of the hair there is some scaling, similar to that seen in seborrheic eczema. Many of the lesions show a central small pit-like depression; this can also be seen in Figure 1.

CASE 2.—S. A., is an American, single, aged 36, driver. The patient's father is dead and his memory is very deficient in regard to the cause, or whether he ever had a skin disease. The mother (Patient 1) is alive. The patient came to the clinic, complaining of a marked keratosis plantaris, and although he had noticed the other skin lesions, he attached no importance to them. He had suffered from some of the diseases of childhood, and exhibited a long scar on one leg, which is evidently the sequel of a former osteomyelitis. Except for this he had enjoyed good health. The duration of the condition, according to his statement, was about four years, but it seems reasonable to suppose from the general appearance that it existed longer. The locations were the face, neck, back, chest, dorsum of hands, extensor side of forearms and axillæ. The lesions were much more numerous on the face and neck than on other parts. They were mainly of sizes varying from that of a millet-seed to that of a match-head. The sides of the face, that is, the temples, jaw and upper lateral half of the side of neck were so thickly studded with lesions that hardly any healthy skin intervened. They were, as a rule, about the same hue as the normal skin, but many of the larger ones were pigmented. In the main they were discrete, but in the locations in which they were most numerous, a tendency to coalescence was observed. In some regions, notably the axillæ, a characteristic pearl-like formation was noticed, with central dot or depression, but in other parts the lesions showed a verrucous appearance. Many of them were rather flat, but others were rounded on the top and some were acuminate. The horny spines frequently seen protruding from the follicles were noticeable only on the back. The man was of dark type, but the pigmentation seemed markedly increased. There

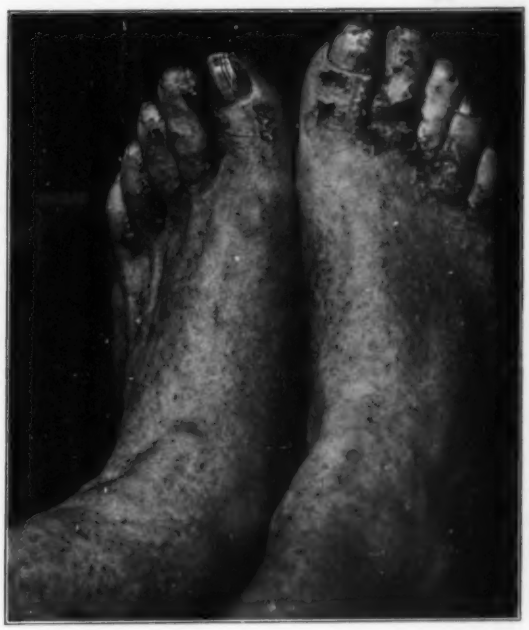


Fig. 3.—Case 3. Keratosis follicularis, showing lesions on toes of both feet.

was a moderate amount of scaling on the face, along the border of the hair line; this may have been due to a pityriasis capitis which was apparent. The soles were the seat of a marked keratosis; in some places (Fig. 2) as much as ¾ of an inch in thickness. They were calloused and fissured and extremely painful when walking.

CASE 3.—The patient, a man, aged 38, butcher, single, is a brother of Patient 2. The duration of his disease is five years. The locations are the chest, back, forearm, hands, face, dorsum of feet and toes. The lesions are exactly like the two previous cases and need no further description. They are follicular on the chest and back, and take on a warty appearance on the forearms. The lesions on the toes are associated with a great deal of moisture, and give off a penetrating and offensive odor. (Fig. 3.) There is some keratosis of the soles, but it is not severe.

CASE 4.—A. S., woman, married, aged 41, engaged in housework, is a sister of Patients 2 and 3. The lesions in this case are the same as in the others, and need no further descrip-

tion. The locations are the face, scalp, auricle, forehead, temple, chest, back and forearms. (Fig. 4.) Plantar keratosis is practically absent in this case. The duration is rather indefinite, but is about eight years.

CASE 5.—The patient, a schoolboy, aged 14, is the son of Patient 4 and the grandson of Patient 1. The disease is a very mild one at this time. The locations are the feet and dorsal aspect of the hands and wrists. The duration is six months; that is, his mother first noticed the lesions six months ago. The integument shows a slight thickening on the palms and is probably a beginning keratosis. The lesions are small, brownish, and give the appearance of minute flat warts. The body with the exception of the locations mentioned is free.

Fig. 4.—Case 4. Keratosis follicularis, showing lesions on face, scalp, auricle, forehead, temple, chest and forearms.

One or two lesions were removed from each patient for microscopic examination. With the exception of minor and unimportant individual differences the pathologic picture was practically the same. Under the low power the main changes were seen to be in the epidermis. A mild degree of hyperkeratosis was present, alternating with areas of parakeratosis.

Corresponding to the center of the section the epidermis seemed as though it were folded on itself, and long cords of epithelium dipped deeply down into the corium. Scattered through the epithelium, but especially in the prickle layer, were many cellular structures, which by their morphology stood out from normal cells of the epidermis. Under the high power these structures were seen to be cells round or oval and larger than the normal epithelial cell (Fig. 5). They lay in a narrow, nonstaining, clear zone. The protoplasm stained somewhat paler than the surrounding epithelium, but the nucleus was definitely more picnotic, and a centrally placed nucleolus was a marked feature of each cell.

The entire cell seemed to be surrounded by a thin capsular membrane. Immediately underneath the distorted portion of the epidermis was a rather sharply defined infiltration of small round cells, with a few large, fixed, connective-tissue cells. There were also a few mast cells, but otherwise the corium and adnexa were quite normal in appearance.

It can be easily seen that the peculiar cells described in this brief summary of the histology are the so-called psorosperms of Darier. As before stated, they are not now supposed to bear any relation to the etiology of the disease, but they are of great diagnostic import, although it must be confessed that the diagnosis is comparatively easy from the clinical standpoint alone. One of the

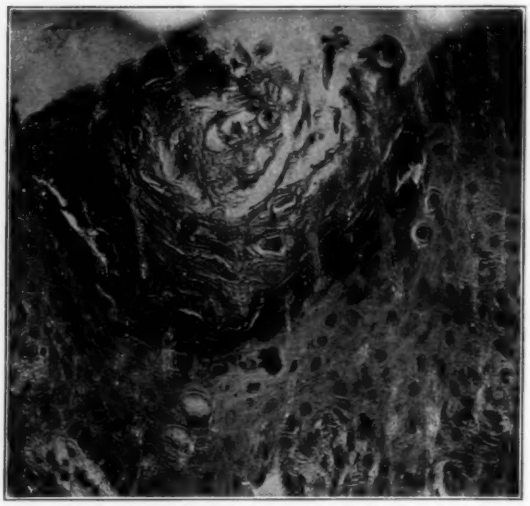


Fig. 5.—Section of a lesion from patient with keratosis follicularis, showing so-called psorosperms.

features of the greater number of cases heretofore reported is that the malady usually began before the sixteenth year. By a glance at the duration in these case reports, it will be observed that the disease began long after the sixteenth year in the first four patients. No great reliance can be placed on these patients' statements, however, as they have rather sluggish intellects, and the disease may have been present in a mild form long before it was observed.

So far as can be learned from the literature, there have been three other instances, in which more than one member of a family was affected. Boeck reports three cases in the same family. White, two cases and Ehrmann, two cases.

Both heredity and contagion have been casually spoken of in connection with this disease; whether any scientific efforts have been undertaken to prove either of these theories is unknown to me. It does not seem without the range of possibility that one of these suppositions is correct, since it is not exceedingly uncommon to find more than one member of a household affected.

With the theory of contagion in mind, some animal inoculation experiments were undertaken. With the cutaneous punch two small pieces of integument were excised from the back of one of these patients.

Each section contained three to five small but typical lesions. Under strict aseptic precautions one of these sections, after maceration in normal saline solution, was grafted into the skin of the shaved abdomen of a guinea-pig. The other section of tissue was made into an emulsion with normal saline, and injected both subcutaneously and intraperitoneally into a second pig.

The third experiment was made on a rabbit, by vaccination with the contents of several diseased follicles.

They were all negative. The animals are still being watched, but the inoculations were performed six weeks ago, and no sign of disease has been observed.

The contents of a number of lesions were forcibly expressed for culture experiments. They were planted on plain agar, blood agar and serum agar, and under aerobic conditions showed nothing but staphylococci, but when planted on glucose agar and grown anaerobically for six days, two apparently different bacilli could be made out in the smears, one a somewhat granular Gram-positive that we take to be acne; the other a short thick bacillus that we cannot classify. Up to the present time, I have been unable to separate them in pure culture, but the trials are still going on.

Whether this bacillus has anything to do with the disease in question it would, of course, be impossible to say. It is realized fully that nothing positive can be stated without much further work and study, which we shall endeavor to do in the near future.

In conclusion, I desire to call attention to the severe and marked keratosis of the soles that is present in a majority of these patients. This symptom, although mentioned in some of the text-books, is spoken of only casually. It was present in all the cases herein reported, except the young boy. Since the disease is a keratosis, this symptom is no doubt directly connected with the pathologic process; at any rate, it is a very frequent concomitant.

My thanks are due to Dr. U. J. Wile for the pathologic examination, and also to Dr. Bennett for material assistance with the culture experiments.

39 East Twenty-Eighth Street.

ABSTRACT OF DISCUSSION

DR. L. DUNCAN BULKLEY, New York: I can recall a case of this affection mentioned, that we saw at the New York Skin and Cancer Hospital, and I also remember that our remedies had little or no effect on it. Subsequently we tried the *x*-ray, and, to our surprise, it had a remarkable effect on the eruption. Within a month the patient was out of bed, to which he had been confined for several months by the excessive eruption on the soles, rendering them exquisitely painful.

DR. RICHARD L. SUTTON, Kansas City, Mo.: Since taking up dermatologic work, I have seen several cases of keratosis follicularis, and I can confirm what has been said regarding the lack of results following the use of the various methods of treatment that have been suggested from time to time. Recently, I saw a case which had been thoroughly treated with the *x*-rays, and by the application of resorcin, salicylic acid and similar remedies, all without any resulting benefit. The only method that proved even partially successful was the one recommended by Herxheimer *(Dermat. Ztschr.*, 1908, p. 45), actual cauterization of the nodules by means of the actual cautery *(Microbrenner)*, thus substituting cicatricial tissue for diseased structures.

DR. W. B. TRIMBLE, New York: I have never been able to do much with these cases in the way of treatment. Under the *x*-ray I saw one woman practically cured of the plantar keratosis at the Skin and Cancer Hospital, while the same treatment, applied to one of her sons, had no effect whatever, although the *x*-ray treatment was continued for a year. The use of strong salicylates and shaving of the skin produce only temporary benefit.

KÉRATODERMIE BLENNORRHAGIQUE

WITH REPORT OF A CASE *

FRANK E. SIMPSON, M.D.
CHICAGO

Although described by Vidal, in 1893, as a unique and well-characterized disease, keratosis blennorrhagica has hitherto attracted little attention. So far as I can find, the disease is not mentioned in any modern text-book on dermatology except in the recent work of Sequeira in which one case is reported and reference is made to several others. For the history of the following case and the privilege of reporting the skin condition, I am greatly indebted to Dr. H. B. Thomas, who treated the patient for the associated gonorrheal arthritis.

History.—The patient, a man aged 28, had had specific urethritis in 1908. Gonococci were demonstrated in smears from the urethra. About six weeks later he suffered from pain in the left hip. Smears from the urethra at this time again showed gonococci. Five weeks later both ankles and the left great toe showed evidences of gonorrheal arthritis. A few weeks later the knees, wrists, metacarpals, vertebræ, elbows, shoulders and right hip were affected. The patient was bedridden and practically unable to move. He brushed his teeth and fed himself with utensils tied to a long stick. About six months from the date of the first joint-trouble, a generalized rash appeared, which was most abundant on the anterior surfaces of the legs, the forehead, the hands and the fingers. In September, 1909, the patient was admitted to St. Luke's Hospital, Chicago. He came under my observation in January, 1910, a few months after the first appearance of the rash.

Examination.—The eruption, which was widely distributed, bilateral, and in the main symmetrical, consisted of two general types of efflorescences. The bulk of the eruption was made up of variously sized crust-like lesions of a remarkable appearance. The smallest and evidently the earliest efflorescences of this type were 3 or 4 mm. in diameter, of round or irregular shape, of yellowish color, sharply circumscribed, and elevated 2 or 3 mm. above the general level. There was no inflammatory base to the lesions, and when one of them was scraped off a smooth, pink, slightly moist surface was found underneath. After removal, the efflorescences, in two or three days, reformed themselves.

The largest lesions of the crusted or "scab-like" type resembled in appearance the "rupial syphilid," but an inflammatory base was lacking. Many of these lesions, which were composed of stratified epidermal layers, were from 1 to 3 cm. in diameter, of conical shape, with pointed apex, enlarging gradually toward the base, which was round or oval. The color of the older and larger lesions was a brownish or dirty grayish-yellow. There was noted, especially on the anterior surface of the legs, a number of crust-like lesions, in which, either by involution taking place in the center, or by the peculiar arrangement of individual lesions, circinate and serpentine configurations were formed.

Situated about the wrists, the internal malleoli of both ankles and on the soles, the second general type of lesion was seen. Here were a number of convex pustules, with hard horny caps, roughly resembling in appearance and consistence the pustules of small-pox.

The palms of the hands were remarkable in appearance, exhibiting an enormous thickening of the epidermis which

* Read in the Section on Dermatology of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

formed a plate-like covering. There were numerous "scab-like" efflorescences, 5 to 10 mm. in diameter, on the backs of the fingers, and the nails of both hands were elevated by subungual, gum-like, yellow crusts. The nails were much thickened, showed a yellowish discoloration and were eventually exfoliated.

The soles of both feet were affected similarly, but the epidermis covering them was even thicker, forming an irregular, horny carapace, which extended beyond the sole and upward toward the internal malleoli. There were, in addition, a number of horny nodules and pustules along the internal borders of the soles anteriorly. The toe-nails resembled the nails of the hands, and like them were finally exfoliated.

The trunk was the seat of more than a dozen scattered lesions, a centimeter in diameter, of the crust-like type. These were most numerous over the sternum and around the umbilicus, while the umbilicus itself was reddened and slightly moist.

The hairy scalp was affected by numerous horn-like crusts, varying in diameter from 1 to 3 cm. The forehead and both upper arms were the seat of numerous similar lesions. A large rupial-like scab was situated at the "vaccination" area on each arm. Both forearms were affected by numerous lesions of both types, i. e., by horny crusts and pustules. On the penis a marked balanitis was noted.

The visible mucous membranes were free.

The course of all the lesions was a prolonged one. If left to themselves they showed little change from day to day, some slowly, others more rapidly, increasing in size, but showing little tendency toward spontaneous involution. The pustular

Fig. 1.—Kératodermie blennorrhagique.

lesions gradually desiccated and changed to the horn-like crusts which have been described.

The eruption was attended by no symptoms except at times a slight itching.

Histologic Examination.—A small lesion was removed from the anterior surface of the patient's leg. For the following report I am greatly indebted to Dr. Maximilian Herzog: "Transverse hematoxylin and eosin-stained sections of the nodule removed show a considerable thickening of the epidermis, particularly in the center of the mass. Here the interpapillary epithelial pegs are wide and they dip to a more considerable distance into the corium. The marked hypertrophy of the epithelial structures is gradually lost toward the edges of the nodule, and the epithelial covering toward one side is thinned out and indeed atrophic, with a complete loss of the interpapillary pegs, a change brought about by a peculiar condition of the corium and subcutis. The latter shows a powerful development of coarse hyaline connective-tissue fibers, between which are seen remnants of sweat-glands, bundles of involuntary muscle fibers of the arrectores pilorum, but neither hair follicles nor sebaceous glands. The appearance of the hyaline connective tissue of the derma somewhat approaches the picture seen in keloid, though the fibers are neither quite as coarse nor as completely hyaline as in the latter pathologic process. Around the scanty small blood-vessels of the subcutis are seen perivascular inflammatory areas, composed of mononuclear cells; polynuclear leukocytes are not seen. In the center of the nodules where the epithelial hypertrophy is most marked, the corium and the papillæ show considerable inflammatory infiltration; here are also seen polynuclear leukocytes and cells with a more or less eccentrically placed nucleus and a somewhat square protoplasm which takes the nuclear stain (hematoxylin) well.

"These cells are very probably plasma cells. There was also seen in the area under description a small vessel, cut longitudinally and completely filled with polynuclear leukocytes. Where the inflammatory infiltration is best marked in the corium and the papillæ, it has extended into the epidermis, and a moderate number of polynuclear leukocytes are seen between the epithelial cells. Those of the thickened malpighian layer are quite normal in appearance. Their prickles are well developed and distinct. A few karyokinetic figures are seen, not only in the innermost cells of the malpighian layer, but also more externally, and this in spite of the fact that the tissue had not been fixed in a fluid particularly favorable to the observations of karyokinetic figures. The outermost cells of the stratum

Fig. 2.—Kératodermie blennorrhagique, × 90.

Malpighii in some places are spindle shaped; the nucleus has remained vesicular; it is contained in a distinct vacuole, but keratohyalin is not demonstrable. In other places, however, finely granular keratohyalin is visible and next to such cells a rather thin stratum lucidum. A detached stratum corneum is found over most of the surface of the sections; it contains granular detritus and numerous infiltrating, compressed and deformed polynuclear leukocytes."

Course of Disease.—The patient's general condition at this time was deplorable, although mentally he was very intelligent and alert. There were emaciation, decubitus and almost complete restriction of motion from ankylosis of the swollen and painful joints. Blood-counts in the early part of the disease were practically negative; later anemia was present. Repeated attempts at culturing the gonococcus from the blood and from fluid aspirated from the joints gave negative results.

In order to exclude syphilis, several Wassermann tests had been made, but these resulted negatively. Antisyphilitic treatment had also been tried without effect. The urine at times showed slight traces of albumin.

The urethral discharge was finally free of gonococci.

Considerable amelioration of the skin condition was brought about by the use of a sulphur and resorcin ointment. As the lesions disappeared under treatment a slightly pigmented or

hyperemic macule marked their site. Everything possible was done for the joints. The measures used included "bakes," Bier's treatment, serums, vaccines, bowel flushing, tonsil treatment, orthopedic appliances, massage, passive motion, manipulation under an anesthetic and injections of formaldehyd and glycerin solution into the joints.

In May, 1911, iritis developed in the right eye, and in July, 1911, loss of sight occurred. In September, 1911, having been bedridden nearly two years, the patient committed suicide. At this time only a few efflorescences on the scalp and fingers remained.

Necropsy.—A complete necropsy with the following anatomic diagnosis was made by Dr. Eggers: chronic deforming polyarthritis; passive hyperemia of the lungs; left hemohydrothorax; passive hyperemia of the stomach, liver and intestines; moderate hypertrophy of the heart; left fibrinous pleuritis; localized fibrinous pericarditis; fibrinous adhesions between the spleen and the diaphragm; atrophy of the testicles; seminal vesiculitis and prostatitis.

Bacteriologic examination of fluids removed from the prostate, seminal vesicles and ankle-joint revealed no organisms.

LITERATURE

So far as I can find, the present case is the first reported in America. Twenty previous cases have been recorded in the literature, brief abstracts of which follow. Moulages of the disease have been made by Vidal and photographic reproductions by Stanislawsky,[1] Baermann,[2] Sequeira[3] and Chauffard.[4]

Vidal[5] described the first case in 1893.

A man, aged 24, was admitted in May, 1890, to St. Louis Hospital, Paris, suffering from blennorrhagia, polyarthritis, blepharitis, anemia, cachexia and a remarkable dermatosis. The rash was symmetrical and generalized and without traces of moisture or oozing. It was composed of horny crusts situated on the head, face and trunk, but especially on the lower limbs and around the malleoli. The palms and soles were covered with isolated and confluent horny crusts. The smallest lesions resembled, in coloring and semitransparency, little drops of yellow wax. The larger ones, yellowish brown in color, were formed by a gradual extension of the smaller lesions and were more than a centimeter in diameter. A cross-section showed a stratification of epidermic layers, not unlike a cutaneous horn. If a crust was scraped off a slightly moist papule was laid bare.

In places, reddish and brownish macules indicated the site of horny crusts which had fallen off. Only rarely were the horny crusts preceded by vesicles and vesicopustules.

Thick, horny crusts formed beneath the nails, from beneath which also pus could be expressed, exfoliation of the nail plate finally taking place.

The eruption strongly resembled the horny syphilid, but antisyphilitic treatment had no effect. Bacteriologically the lesions were negative.

The right knee is shown in the Baretta moulage No. 1544, and the right foot in moulage No. 1523, of the St. Louis Hospital collection in Paris. With the subsidence of the blennorrhagia and the arthritis, spontaneous involution occurred. Two years later, under the same conditions, i. e., a blennorrhagia and polyarthritis, Vidal observed a recrudescence of the eruption in the same individual.

Jeanselme[6] reported one case.

A man, aged 24, had gonorrhea, but continued his rough work as a driver during treatment. Gonorrheal arthritis, involving the right hip, the knees and the feet, occurred three or five weeks later. Characteristic papules then appeared on the feet and around the toe-nails. Two months later, the papules and other symptoms were disappearing but complete recovery had not taken place when the report was made.

Jaquet and Ghika[7] reported the third case.

In this patient, a fourth attack of gonorrhea was accompanied by arthritis, cardiopathy and numerous horny crusts on the feet; a fifth gonorrhea, with the same symptoms. A sixth gonorrhea with deforming arthritis of the feet was accompanied by aortitis, cachexia and large keratotic plaques.

Chauffard[8] reported one case.

In his patient there was polyarthritis involving the knees, left ankle, and metatarsophalangeal articulation of the great toe. Acute ophthalmia, nephritis, marked cachexia, and considerable azoturia were present. There were cutaneous horny lesions on the inner upper part of the thigh in plaques, on the back, on the right hand (two lenticular protrusions) and on the sole.

Robert[9] reported two cases.

In the first case, an ophthalmia of the right eye was accompanied by cone-shaped, discrete growths on the knees. There was no arthritis. In the second, a child of 4, corneous lesions occurred on the dorsal surface of the feet. There was no arthritis.

Launois[10] reported a case.

In this patient, a gonorrhea was accompanied by general arthritis, iritis and profound cachexia. Corneous papules appeared, in successive crops, on the plantar surface of the feet. Recovery. Horny papules then appeared over the sacral region and inner surface of the left ankle, later involving the legs, both feet, scrotum and prepuce. On the soles, thirteen or fourteen brown papules appeared, resembling nail-heads. Some of the lesions were pustular. The nails were also involved. When the dark yellow, horny crusts were removed, slightly moist, rosy skin appeared beneath. The diagnosis of syphilis was made at first but when specific treatment failed, the true nature of the disease was recognized.

Stanislawsky[1] reported one case in 1901.

In this patient there was gonorrheal urethritis with joint involvement, a symmetric horny exanthem, and falling off of the nails. The patient, aged 28, complained of severe pain in the left ankle, three weeks after infection with gonorrhea. During the next two weeks the right ankle and the right knee were involved.

Malherbe[11] reported a case.

The patient had chronic gonorrhea and a general arthritis. There were a dozen horny cones on both feet.

Two cases were reported by Baermann.[2]

In the first patient, during a third gonorrhea, there was arthritis of the left foot and hands. Horny cones developed on the sole of the right foot. In a fourth gonorrhea, arthritis of the right knee, of the vertebræ and of the great toe developed. There were conjunctivitis of the left eye, scaly cones

1. Stanislawsky: Ueber einen Fall von gonorrhoischer Urethritis mit Affection der Gelenke, symmetrischem, hornartigen Ausschlieg und Ausfallen der Nägel, Monatsbericht ueber die Gesamtleistungen n. d. Gebiete der Erkrankungen des Harn und Sexualapparates, 1900, p. 643.
2. Baermann, G.: Ueber hyperkarotische Exantheme bei schweren gonorrhoischen Infectionen, Arch. f. Dermat. u. Syph., 1904, lxix, 363.
3. Sequeira, J. H.: Kératodermie Blennorrhagique, Proceedings of the Royal Society of Medicine, London, iii, Part 1, p. 77.
4. Chauffard, A., and Flessinger, N.: Deux cas de kératose blennorrhagique. Reproduction expérimentale et de la lésion cutanée, Bull. de la Soc. Fr. de Dermat. et Syph., May, 1909, No. 5, p. 162; also Ikonographia Dermatologica, 1910.
5. Vidal, E.: Éruption généralisée et symétrique de croutes cornées avec chute des ongles, d'origine blennorrhagique, coincidant avec une polyarthrite de même nature. Recidive à la suite d'une nouvelle blennorrhagie, deux ans après la guérison de la première maladie, Ann. de dermat. et de syph., 1893, p. 3.
6. Jeanselme, E.: Troubles trophiques dans la blennorrhagie, Ann. de dermat. et de syph., 1895, p. 525.
7. Jacquet and Ghika: Sur un cas d'arthro-blennorrhagisme avec troubles trophiques, Soc. méd. des hôp. de Paris, Jan. 22, 1897.
8. Chauffard, A.: Infection blennorrhagique avec productions cornées de la peau, Soc. méd. hôp. de Paris, April 23, 1897.
9. Robert, E.: Contribution a l'étude des troubles trophiques cutanée dans la blennorrhagie, Thèse de Paris, April 28, 1897.
10. Launois; P. E.: Arthropaties récidivantes, Amyotrophie généralisée, troubles trophiques multipies d'origine blennorrhagique, Soc. méd. des hôp. de Paris, July 21, 1899.
11. Malherbe: Uréthrites a gonocoques récidivantes, arthropathies multipies, troubles trophiques cutanés, cornés, Gaz. méd. de Nantes, 1901, No. 6.

on the feet and diffuse keratosis of the palm of the left hand. Recovery.

In the second case, there was arthritis of the knees, foot and hand. The patient was in a cachectic state and had double ophthalmia and generalized, scaly horny lesions. The soles of the feet were much thickened. Recovery.

Roth[12] reported one case.

A man, waiter, aged 35, with his second attack of gonorrhea, which was accompanied by balanitis and fever, developed synovitis of the right metatarsus. About fifteen small, hard, dark brown papules, like little cones of wax-like transparency, developed on the right foot, especially around the great toe. They were situated on sound skin and could be peeled off, leaving a succulent and blood-tinged base. Similar papules developed on the left foot. In five or six weeks, the gonorrheal urethritis subsided, and simultaneously the skin lesions receded and disappeared.

Chauffard and Froin[13] reported two cases.

In the first, a urethritis was accompanied by a general arthritis which involved the temporomaxillary articulations, the vertebræ, limbs, hands and feet. Cachexia was present. Horny cone-like lesions appeared on the feet. Recovery. In the second case, there was gonorrheal arthritis of the right knee and shoulder and profound anemia. Horny papules on the right big toe. No gonococci were found in the skin lesions. Recovery.

Chauffard and Fiessinger[4] reported two cases.

In the first patient, a gonorrhea was accompanied by arthritis of the knees and ankles. There were small horny papules on the back of the foot, predominating on the first phalanx of the big toe. The sole was very hard and horny and not painful on pressure. In the second case, a gonorrhea was complicated by extensive arthritis involving the knee, ankles and temporomaxillary articulation, a horny eruption, particularly extensive on the back of the foot and in the region of the instep and a thickened sole. The authors made experiments with the view of reproducing the cutaneous lesions. Subcutaneous injections of gonorrheal pus gave negative results, but when the skin surface was abraded and the serum underneath the crusts of gonorrheal keratosis was inoculated on the prepared surface, the clinical and histologic picture of the spontaneous keratosis was produced. It was found necessary to cover the experimentally inoculated area with a glass shield.

Rivet and Bricout[14] reported a case of gonorrheal keratosis.

In the first, and again in a second, attack of gonorrheal keratosis eight years later, the patient developed polyarthritis. The second attack was more severe and was ascribed to neglect of treatment. About four weeks later gonorrheal keratosis developed.

In March, 1910, Sequeira[5] presented a case to the Royal Society of Medicine in London, the first instance of the disease shown in England. The patient had gonorrheal arthritis of both knees, right elbow and right sternoclavicular articulation. He was very anemic, cachectic and wasted. Soles of both feet presented a remarkable appearance. The rash had begun about two months after the appearance of specific urethritis and simultaneously with the arthritis, as small "pimples" or swellings on both soles. Along the inner border of each sole was an irregular horny mass with a nodular surface. Smaller masses were situated along the outer side of each sole and the intervening areas were covered with a brownish-yellow, parchment-like thickening of the epidermis. The nodules were of a dark brown or purplish brown color. The individual swellings measured 0.3 cm. to 2 cm. across from base to base. The excrescences had crept toward the dorsum on both inner and outer aspects of the feet. The affected area was sharply limited by a narrow zone of hyperemia. The toes were free except for small isolated nodules at the root of the great toes. The lesions felt like horn. The palms were not affected. The patient had been treated with vaccines and the arthritis was better. Later a portion of the carapace on the right sole separated, leaving a reddish brown patch.

Turnbull reported on the histologic structure of an excised early nodule. The nodule was covered by a very thick horny cap. The interpapillary processes beneath this were much lengthened. Papillæ were very edematous and much infiltrated. There was no edema in the subjacent derma but a little infiltration, especially around the vessels. Infiltration in the derma consisted of lymphocytes with many mononuclear and binuclear plasma cells. (Unna Pappenheim.) There were a few neutrophilic polymorphonuclear leukocytes in the upper part of the papillæ and many in the capillaries. Only one or two eosinophils were found. No mast cells seen. In the epidermis the lower part of the malpighian layer showed clear prickle borders; karyokinetic figures were present in the basal layer. A varying number of neutrophil leukocytes were seen in these layers. A stratum granulosum was only recognizable in places. At this level, very large numbers of neutrophil polymorphonuclear leukocytes in masses occupying rounded spaces formed by the degeneration of epithelial cells. The superjacent horny layers contained many flattened nuclei and collections of neutrophil leukocytes lying in strands between the horny layers. A superficial layer of horny substance without nuclei was present in part of some of the sections.

Williams[15] reported a case of gonorrheal keratosis of the hands and feet.

A man, aged 21, had previously had hyperidrosis pedis and keratosis of the feet. He then developed a urethritis which was followed in one month by arthritis of knee and ankle. One month later, a diffuse plate-like keratosis of the soles developed together with a few corn-like nodules. A few days later the hands showed yellow horny cones.

Little and Douglas[16] reported a case.

The patient, a policeman, aged 30, in a second attack of gonorrhea developed arthritis of both knees. Temperature, 102 and higher, was present and he became weak and unable to stand. The soles of the feet showed numerous conical, translucent, brown horny lesions, raised ¼ to ½ inch above the niveau. On the dorsum of the feet and on the hands and elbows were several rupia-like scabs. The nails were exfoliating. An eruption of warty scabs had appeared on the elbows during a similar attack two years before.

ETIOLOGY

Gonorrheal arthritis has been present in all but two of the reported cases of keratosis blennorrhagica. While the etiologic relation of the gonorrheal general infection to the eruption is not absolutely proved, the probability that there is such a relation is very great. Baermann[2] believes an etiologic connection is established beyond all doubt: (1) because of their constant association, the eruption waxing and waning with the infection; (2) because a similar eruption in other diseases or as an idiopathic affection has not been described.

Chauffard and Fiessinger[4] state that in the presence of severe and resistant gonorrheal arthropathies we may assume the existence of gonococcus septicemia. The gonococcus undoubtedly invades the skin and is the direct cause of the eruption of keratotic crusts. As accessory causes, which act by preparing the ground successfully, they mention the following factors:

1. Confinement to bed with inhibition of motion.
2. Abundant perspiration with infrequent ablutions and change of dressings.

12. Roth, V.: Zur Kasuistik des "hyperkarotischen" gonorrhoischen Exanthems, München. med. Wchnschr., May 30, 1905, p. 104.
13. Chauffard, A., and Froin: Sur la kératose blennorrhagique, Arch. de méd. expér. et d'anat. path., September, 1906, No. 3.
14. Rivet, L., and Bricout, C.: Sur un cas de Kératose Blennorrhagique, Bull. méd., 1909, p. 851.
15. Williams, W.: Proceedings of the Royal Society of Medicine, London, 1911, iv, Part 1, p. 12.
16. Little, E. G. G., and Douglas, S. R.: Proceedings of the Royal Society of Medicine, London, 1911, v, Part 1, p. 8.

3. The wearing of rubber stockings and the prolonged application of Bier's band.

These factors act by favoring the accumulation of scales and the maceration of the epidermis. The authors were led to this view by the results of their inoculation experiments. Having abraded the epidermis, they rubbed in the serum obtained from beneath a keratotic crust, covered the inoculated area with a watch crystal, and reproduced the eruption macro- and microscopically.

This was only possible, however, in a keratotic subject and was unsuccessful in a healthy subject and in animals. These authors discard the trophic theory of the eruption held by the earlier French writers for the following reasons:

They were unable to confirm Jaquet's observation that the reflexes were always increased, and after a lumbar puncture in one of their cases the results were negative. From this they inferred the integrity of the nervous centers. The same authors discard the gonotoxic theory and the hypothesis that the staphylococcus is the cause of the keratosis.

PATHOLOGY

The histologic structure has been examined by Chauffard,[8] Baermann,[2] Chauffard and Froin,[13] Chauffard and Fiessinger,[4] by Turnbull in Sequeira's[3] case, and in the present case, with similar, but not characteristic, findings. A. Chauffard,[8] in 1897, made the first biopsy. He showed the existence of a papillary dermatitis with leukocytic infiltration and immigration of the leukocytes into the malpighian interstices. Subsequently, Baermann[2] stated that the horny formations characteristic of the disease were not true keratoses but were the results of a parakeratosis. On this account, he proposed the title, "dermatitis papillaris parakeratotica," a name which has not, however, been generally accepted.

In their latest article, Chauffard and Fiessinger[4] corroborate Baermann and state that the leukocytic infiltration, deep and epidermic, composed of polynuclear leukocytes and mast cells, together with parakeratosis, are the distinguishing features of the histologic picture. Gonococci have never been found in the lesions.

CLINICAL CHARACTERISTICS

Buschke[17] has made a complete study of the eruptions observed in gonorrhea. He differentiates four groups.

1. Simple erythema. This form is the most frequent. Among these cases, there are naturally some balsamic erythemas, but excluding these, there are some cases that cannot be brought into etiologic relation with the medication.

2. Urticaria and erythema nodosum. Skin lesions exactly simulating urticaria and erythema nodosum have occurred in gonorrheal infections. Joint pains and arthritis have been present in some of the cases. Endocarditis and pericarditis have also been observed.

3. Hemorrhagic and bullous exanthems. These lesions have usually been associated with evidences of gonococcus septicemia and are possibly of embolic origin.

4. Hyperkeratosis. In this group, in which may be included the present case, the lesions are probably specific. Baermann,[2] who has made a special study of this group, divides the cases of gonorrheal keratosis into:

A. A generalized form. Here the lesions may occur anywhere — in one case even on the mucous membranes. The extremities are the sites of predilection. The legs and forearms are involved more commonly than the thighs and arms, while the face and scalp are the rarest sites.

B. A localized form, involving especially the feet and hands. This is much more the common type.

Of the twenty previous cases, four were of the generalized and sixteen of the localized type. Chauffard and Fiessinger point out the special preference of the disease for the internal borders of the feet and the dorsum of the big toe in the vicinity of the nail matrix.

When occurring on the head, trunk or extremities, the lesions are, as a rule, isolated, sometimes confluent, horn-like crusts, 0.2 cm. to 3 cm. in diameter.

On the soles or palms, a diffuse, often irregular, dirty yellowish thickening of the epidermis, with projections like a "relief map," is the usual finding.

In the present case the circinate and serpentine configurations, noted especially on the legs, were an interesting feature.

Destruction or ulceration of the skin never occurs. Hence there is no scarring, the site of former lesions being marked only by a slight hyperemia or pigmentation which finally disappears.

In the diagnosis, syphilis must be considered. Some of the lesions look not unlike a peculiar psoriasis with a complicating seborrhea. The general picture, however, is quite unlike any of the ordinary dermatoses and in connection with a gonorrheal arthritis could scarcely be mistaken.

TREATMENT

Chauffard and Fiessinger[13] recommend the use of soap and hot water for its macerating effect on the lesions.

In the present case a resorcin and sulphur ointment was of benefit. Spontaneous involution of the eruption takes place with the subsidence of the arthritis.

59 East Madison Street.

17. Buschke: Arch. f. Dermat. u. Syph., 1899, xlviii, 181 and 385.

ABSTRACT OF DISCUSSION

DR. JOSEPH ZEISLER, Chicago: Most of us are acquainted with kératodermie blennorrhagique merely by having seen some of the illustrations of that rare condition when occurring on the soles of the feet. We have reached the point where we understand the systemic effects of the gonococci better than before, and Irons' experiments in regard to the allergic reaction after cutaneous vaccination with dead gonococci have certainly been noteworthy in this respect. That the gonococcus may exert a peculiar local irritating effect on the skin can be seen in the well-known production of venereal warts. The rarer form of blennorrhagic keratodermia might be explained as an analogous formation.

DR. M. L. RAVITCH, Louisville: In these cases we may have the same process as we see in syphilis. In syphilis, when the infected individual has the spirochetes deposited in the neighborhood of the glans penis, Nature does her utmost to overcome the foreign invasion and sends out serum and other defensive fluids. These agents try to envelop the spirochetes and kill them, and thus we have a chancre. The spirochetes, in the majority of cases, are not killed; they invade the deeper tissues, are absorbed by the lymphatics and blood-vessels, and the entire system becomes impregnated with them. Nature makes another effort to kill them, sending out defensive fluids, and we have the secondary eruption. Nature having failed, the physician comes to the rescue and applies chemical means, such as mercury and different preparations of arsenic. In the majority of cases, the spirochetes are destroyed, but in some instances they remain lodged somewhere in the system, or rather become encysted. They become latent enemies, as we might call them. In a year or in many years they may be gradually revived and become quite active, as the system becomes less active in defensive power; we get, then, a fresh syphilitic development, or, as some may think, a reinfection. A similar theory can be applied in Dr. Simpson's case. The patient's system being very susceptible to the invasion of microorganisms, the gonococci might have entered

into the circulation, sensitized the tissues and produced the phenomena described.

DR. FRANK E. SIMPSON, Chicago: The relation of the gonococcus to this form of dermatitis is very interesting. The gonococci have been looked for in the lesions very often, but have never been found, which, perhaps, is simply due to the fact that they were not looked for at the proper time. If they should be found eventually it would tend to uphold the contention that all the parakeratoses are due to a microbic agent.

APPENDICITIS COMPLICATING PREGNANCY

PALMER FINDLEY, M.D.
Professor of Gynecology, College of Medicine, University of Nebraska
OMAHA

It is my purpose to present briefly the debatable points of interest in relation to appendicitis as a complication of pregnancy, labor and the puerperium. Obstetricians were slow to appreciate the frequency and gravity of appendicitis as a complication of pregnancy. This was so because appendicitis was not clearly recognized until Fitz, in 1886, substituted the term appendicitis for typhlitis and perityphlitis. Eight years later, Paul F. Munde[1] reported three cases of appendicitis complicating pregnancy and two years later R. Abrahams[2] added twelve cases. The clinical deductions of Munde and Abrahams are generally accepted to-day. In fact there has been little of importance that has been contributed by later writers. The most elaborate contribution to the subject is that of H. H. Schmid who collected 486 cases of appendicitis complicating pregnancy from the literature of the past twenty years.

Appendicitis occurs with greatest frequency during the child-bearing period, hence it is not strange that it should be found to complicate pregnancy. But we are not to conclude that the combination is a coincidence in all cases. Nearly all authorities agree that a primary attack is not incited by the pregnant state but that there is a very great liability to recurrent attacks during pregnancy, labor and the puerperium.

As to the frequency with which women who have suffered from one or more attacks of appendicitis prior to pregnancy experience a recurrent attack in event of pregnancy I quote the observations of Goedecke.[3] He reported sixteen cases of pregnant women who had suffered from an attack of appendicitis prior to their pregnancy and of this number five went through pregnancy and puerperium with no trouble from their appendix, while eleven had a recurrent attack during their pregnancy.

The explanation for recurrent attacks in pregnancy, lies in the vascular engorgement of the appendix, in the constipation which is so commonly associated with pregnancy, in the toxemias of pregnancy, in the encroachment of the uterus in the early months of pregnancy, and in the puerperium and, finally, in the occasional presence of adhesions binding the appendix to the uterus and its appendages. While these factors doubtless tend to incite a recurrent attack of appendicitis they cannot be said to create a primary attack.

I am unable to arrive at any estimate of the frequency of the complication. Treves, in 1895, reported six cases of appendicitis complicating pregnancy out of a total of 1,000 cases of appendicitis in women. Norris[4] operated on 445 women of appendicitis, six of whom were pregnant. Sonnenburg performed 2,000 appendectomies, in four of which the appendicitis occurred in pregnancy and the puerperium. Baldwin had six pregnancies in 1,800 appendectomies; Vineberg nine in 731 and v. Eiselberg thirteen in 520. E. Fraenkel[5] found five cases in 40,000 pregnancies; Schauta four in 34,000; v. Rosthorn[6] two in 27,000; Fellner none in 4,000; v. Oordt four in 10,000 and Chrobak and v. Rosthorn thirteen in 13,000.

The gynecologist and obstetrician doubtless find a much larger percentage of appendicitis complicating pregnancy for the very good reason that they see more pregnancies and fewer cases of uncomplicated appendicitis.

Appendicitis complicating pregnancy presents a serious problem because of the occasional difficulties encountered in making an early diagnosis. It is true that both mild and severe attacks of appendicitis often go unrecognized in the course of pregnancy, in labor and in the puerperium. Mild attacks are interpreted as the ordinary discomforts of pregnancy and the severe cases occurring in the puerperium are frequently regarded as types of puerperal sepsis. Again, we find these attacks interpreted as intestinal colic, renal colic, ureteropyelitis, threatened miscarriage, salpingitis and tubal pregnancy.

While mild attacks do not alter the course of pregnancy, severe attacks will usually result in the interruption of pregnancy, and not infrequently in the death of the fetus *in utero*. The infection may extend to the uterus by way of the fallopian tubes or by way of the broad ligaments and uterine wall to the placenta. In this manner, the colon bacillus has been conveyed to the placenta and fetus. The large percentage of fetal mortality observed in the reports of cases is due in part to the interruption of pregnancy prior to the period of viability and in part to fetal toxemia. In eighty-nine appendectomies on perforated appendices there were thirty-three abortions after operation. In fifty non-perforated cases seven abortions followed operation. Boije[7] referred to eighteen cases in Engstrom's clinic in which pregnancy was not interrupted. A gangrenous appendix with general peritonitis was operated on in the fourth month of pregnancy by T. K. Holmes[8] and pregnancy went to term with the delivery of a healthy child. Several such cases are on record.

Falk[9] drained an appendiceal abscess containing two liters of pus without interrupting a six months' pregnancy. It is incumbent on the surgeon, therefore, to employ every possible means of preventing miscarriage after operating. When a viable fetus is born early in an attack the chances for the life of the child are not greatly influenced by the appendiceal infection but when the delivery occurs late in the course of a severe attack of appendicitis the fetal mortality is great as the result of sepsis. It has been frequently observed that death of the mother rapidly follows the interruption of pregnancy. While miscarriage is regarded as a contributing factor to the fatal issue, sepsis is the chief determining factor.

It is generally conceded that appendicitis complicating pregnancy and the puerperium runs a more rapid

* Read in the Section on Obstetrics and Gynecology of the American Medical Association, at its Sixty-Third Annual Session, held at Atlantic City, June, 1912.

1. Munde, P. F.: Med. Rec., New York, Dec. 1, 1894; Oct. 26, 1895; March 23, 1895.
2. Abrahams: Am. Jour. Obst., 1897, xxxv.
3. Goedecke: Zentralbl. f. Gynäk., 1912, No. 15.
4. Norris: Am. Gyn. and Obst. Jour., xiv, 425.
5. Fraenkel, E.: Samml. klin. Vortr., 1898, No. 229, S. p. 1335.
6. Von Rosthorn: Med. Klin., 1907, S., p. 339.
7. Boije: Chap. XXIX, Frommell's Jahrb. über Geb. u. Gyn., 1903.
8. Holmes, T. K.: Am. Jour. Surg. and Gynec., February, 1903.
9. Falk, Otto: Zentralbl. f Gynäk., 1900, xl, S. p. 193.

and destructive course than in the non-gravid state. It is true that appendiceal abscesses are particularly liable to rupture into the free peritoneal cavity. The explanation lies in the fact that the growing uterus of pregnancy and the contracting uterus of labor and the puerperium form the inner boundary of the abscess, hence the great liability of the abscess to rupture.

Myers[10] reported nine cases of appendiceal abscesses with three deaths from general peritonitis, and again Meyers collected the records of sixty-nine cases of appendicitis in which the patient was operated on in the course of pregnancy. Of these patients forty-nine (71 per cent.) developed a gangrenous appendix with abscess formation. Babler[11] collected 235 cases of appendicitis complicating pregnancy and the puerperium. In a total of 207 cases the appendix perforated in 103; eighty-nine patients were operated on with thirty-six maternal deaths. In fourteen of the perforated cases no operation was done; all the patients died. There were fifty non-perforated cases in which operation was done with one maternal death. Twenty-eight cases occurred in the puerperium, eighteen were perforated, in twelve the patients were operated on with four maternal deaths. Two of the five patients not operated on recovered after rupture of the abscess into the rectum. In all of the non-perforated cases occurring in the puerperium the patients recovered. Babler very pertinently concludes: "The mortality of appendicitis complicating pregnancy is the mortality of delay."

The evidence is convincing that appendicitis runs a more rapid and destructive course when complicating pregnancy and the puerperium and therefore demands prompt consideration at the hands of the surgeon.

If it be true that appendicitis is particularly liable to recur in event of pregnancy it follows that women in the child-bearing period who have suffered one or more attacks of appendicitis present a very special indication for the removal of the appendix.

I would not go so far as does Fraenkel[5] in advising the removal of the appendix in all attacks, both mild and severe, occurring in the course of pregnancy. When the attack is mild, unless oft repeated, it would seem advisable to postpone operation until the end of the puerperium. When there is a definite pronounced attack in the course of pregnancy or the puerperium the demand for immediate operation is imperative in view of a possible rapid and destructive course. The earlier in the course of both pregnancy and appendicitis the operation is performed the better will be the result. When an appendiceal abscess is recognized drainage should be established without delay because of the great liability of rupture of the abscess into the peritoneal cavity. This applies as well to abscess formation at the beginning of labor when the contracting uterus would be so liable to disseminate the pus. The greatest caution must be exercised to prevent the contamination of the genital tract by the escaping pus.

It is seldom that pregnancy is interrupted in the course of a mild attack of appendicitis but it is the rule that pregnancy is interrupted in the course of severe attacks. When operation is performed in such cases, every precaution should be taken to prevent miscarriage. In operating the uterus should be carefully guarded from undue handling and exposure and after operation opiates should be administered to the patient and absolute rest enjoined.

In severe attacks occurring at the end of pregnancy and without evident abscess formation, the rule should be to induce labor and to remove the appendix at the completion of labor.

In the past six years I have had fifteen cases of appendicitis associated with pregnancy, labor and the puerperium. The first seven of these cases were reported in the *American Journal of Obstetrics*;[12] the others are given here:

CASE 8.—Mrs. H., aged 32, quartipara, had a severe attack of appendicitis two years before the present attack and had since suffered from tenderness and pain in the appendiceal region with gastro-intestinal disturbances. Her fifth child was born at term, March 2, 1911, and six hours after the completion of labor the temperature reached 101.5 F.; in forty-eight hours it was 105.6 F., and the pulse was 120. There was intense pain in the region of the appendix, rapid distention of the abdomen, nausea, obstipation and muscular rigidity over the right lower quadrant. I first saw her at the end of the third day of the puerperium and operated within two hours. The appendix was not adherent but was large, congested and contained a small amount of pus. Recovery followed.

CASE 9.—Mrs. S., aged 22, secundipara, first complained of pain in the region of the appendix three years before. In these three years she had had several moderately severe attacks of appendicitis; the last was not severe but her physician advised the removal of the appendix in view of the fact that she was again pregnant. I operated on her in the fifth month of gestation. The appendix was thickened, but contained no pus and no adhesions existed. Recovery followed and the pregnancy proceeded to term with the delivery of a healthy child.

CASE 10.—Mrs. W., aged 28, primipara, entered the hospital in the twelfth week of gestation. Five years previously, she had her first attack of appendicitis. Since then she had had several recurrent attacks of moderate severity; the last was in the fifth week of her present pregnancy. These attacks were of moderate severity. She suffered from the usual gastro-intestinal disturbances of chronic appendicitis, and the pain in the right iliac region had been steadily increasing as the pregnancy advanced. I removed a thickened non-adherent appendix. Recovery followed without the interruption of pregnancy.

CASE 11.—Mrs. S., aged 22, primipara, was about ten weeks pregnant when she experienced her second attack of appendicitis, the first having occurred six months before. I operated on her a few days after the acute symptoms of the second attack had subsided and removed a thickened, congested appendix which was not adherent and did not contain pus. Recovery followed and the pregnancy proceeded to term with delivery of a healthy baby.

CASE 12.—Mrs. E., aged 31, primipara, had never experienced an attack of appendicitis until her present pregnancy. One week before admission to the hospital she had a moderately severe attack. The appendix was removed in the ninth week of gestation; it was in the subacute stage of a catarrhal inflammation. Recovery followed. The pregnancy proceeded to term.

CASE 13.—Mrs. K., aged 24, nullipara, miscarried at the seventh month of gestation. She experienced great pain in the region of the appendix throughout labor. I saw her three weeks after the miscarriage when I drained an appendiceal abscess through the right lateral incision. The abscess contained fully two quarts of pus. The records were not kept for the first three weeks following the miscarriage, but it was stated by her physician that her temperature was elevated to 101 F. by the end of labor and ranged from 101 F. to 105 F. to the time of operation. So far as known, this was her first severe attack, but there were several preceding mild attacks. Recovery followed.

CASE 14.—Mrs. S., aged 29, secundipara, referred to me by Dr. Peters of Stanton, Neb., was then believed to be about

10. Myers, MAX: Am. Jour. Obst., March, 1906, p. 358.
11. Babler: THE JOURNAL A. M. A., Oct. 17, 1908, p. 1310.
12. Am. Jour. Obst., 1909, lv, 6.

three weeks pregnant. Two days after her first confinement she experienced her first attack of appendicitis which was moderately severe. This was three and one-half years ago. Since then, she has had more or less discomfort in the neighborhood of the appendix. In her second pregnancy this discomfort was increased. She gave birth to her second child eighteen months ago. For two or three days preceding labor and for a week following labor, the pain in the right side was very intense. The abdomen became distended, there was elevation of temperature and the bowels were moved with great difficulty. She continued to suffer from pain in the right side to the time of operation. I removed an appendix which was distended throughout its entire course with bloody feces; there were no adhesions. Recovery ensued without miscarriage.

CASE 15.—Mrs. B., aged 24, primipara, referred by Dr. Sullivan of St. Edwards, Neb., is in the seventh month of gestation. She has had four severe attacks of appendicitis—the first eighteen months ago, the second one year ago, the third three months ago, when she was about four months pregnant and the last one week ago. All these attacks were typical and severe. At no time since her first attack has she been free from discomfort referable to the appendix. Her last attack has completely subsided, leaving nothing but some localized tenderness. In the effort to save the child I am keeping her under observation in the hospital and should another attack set in she will be operated on without delay.

CONCLUSIONS

These fifteen cases present several points of interest:

1. In all but one of the fifteen cases there had been previous attacks of appendicitis.

2. Six of the cases were mild attacks, in which all the patients recovered without the interruption of pregnancy. Ten were severe attacks in which seven patients recovered and three died. In all there were three deaths in fifteen cases and in one of the fatal cases the patient was not operated on.

3. In the fifteen cases the attacks occurred in labor in one, in the puerperium in five, and in pregnancy in nine cases.

4. The five cases occurring in the puerperium were of unusual severity.

5. Of the fifteen cases two patients died of septic peritonitis and one of bronchopneumonia. One of these patients was not operated on.

6. In the majority of cases the attacks recurred in the early months of pregnancy.

7. Mild attacks showed no disposition to disturb the pregnancy.

8. In Case 15, the patient refused operation in a severe attack which occurred in the third month of gestation. She had recovered from her last attack before entering the hospital and inasmuch as she was in her seventh month of pregnancy it was thought advisable to delay operative interference in the interest of the child, but with the understanding that she would be operated on at the onset of a subsequent attack.

9. In Cases 4 and 6[11] the fetus was dead *in utero*, the latter at term, the former in the early weeks of its development.

10. In Cases 2 and 6[11] there was a gangrenous appendix with abscess formation which rapidly spread to the general peritoneal cavity and resulted fatally.

11. In no instance was pregnancy interrupted after the removal of the appendix.

12. These experiences lead me to the conclusion that pregnancy probably has no influence in creating a primary attack of appendicitis but has a very great influence in creating renewed attacks.

13. Of women who have had appendicitis prior to pregnancy 50 to 60 per cent. will suffer more or less disturbances referable to the appendix in subsequent pregnancies.

14. Inasmuch as appendicitis complicating pregnancy and the puerperium tends to run a rapid and destructive course, it is particularly hazardous to delay operative interference in sharp attacks.

15. The earlier in the attack and the earlier in the course of pregnancy the operation is performed, the better will be the results.

16. Wagner estimates the mortality of non-operative severe cases at 77 per cent. as contrasted with a mortality of 6.7 per cent. in cases of all grades of severity in which operation is done within the first forty-eight hours, a record that is not exceeded in operating appendicitis that is not complicated by pregnancy. Doubtless this record of 6.7 per cent. maternal mortality in all cases in which operation is done within forty-eight hours from the beginning of the attack would be materially reduced were these patients operated on within the first twenty-four hours.

3602 Lincoln Boulevard.

ABSTRACT OF DISCUSSION

DR. JOHN B. MURPHY, Chicago: The mortality of appendicitis is enormously greater than the mortality of any other condition. What are the anatomic and the pathologic conditions that contribute to this mortality? The anatomic conditions that contribute to the mortality are, as shown, the fact that as the uterus enlarges during pregnancy it removes from the appendix its natural protectors, the omentum and the intestine. There are two opportunities for infection to occur: hematogenous conditions in the bladder and rectum, and a severe attack of appendicitis. In miscarriage or labor, infective material is scattered all about. One focus of infection is close to the outlet of the pelvis; infection may occur either through the blood-vessels or by direct transmission from the vagina. We must determine how to avoid these dangers. Dr. Findley emphasizes these two facts, that when the condition was diagnosed and remedied early, the mortality was practically *nil;* when the condition was diagnosed late and the endeavor to remedy it was also late, the mortality was colossal. Therefore, we go back to the proposition: Can we diagnose the condition early? If we can diagnose the condition early, what is the excuse for waiting? We can diagnose the condition early even in the presence of pregnancy. What are the conditions that we have to differentiate? Hematogenous infections of the kidney; infection of the bladder; obstruction to the ureter. Lesions of the kidney can easily be differentiated from acute appendicitis, with and without pregnancy. The onset of pain is the same in both. The reflexes are normal in both; leukocytosis occurs in both, particularly in the metastatic variety of infection. You have, therefore, the principal symptoms, except the local manifestation, the same in both. One of the important points in the differentiation is the exclusion of kidney and gall-bladder infection. It is easy to exclude gall-bladder disease from infection of the appendix, but it is not always easy to exclude renal complications. You can do it, however, in all cases. You must resort to fist percussion. Have the patient sit on the side of the bed and let the hands come clear down, so as to force the kidney high up. Then place the hand over the left kidney and strike it with the closed fist. If there is an acute obstruction the patient will immediately spring up, and it may be all he can do to keep from striking you. If there is any one thing that a man of experience has concluded, it is that he does not know what is going to occur in the ten or twenty or forty hours following the onset of the appendicitis. If you do not know what is going to happen, what justification have you for taking the hazard which Dr. Findley has accentuated?

CARE OF SCARLET FEVER PATIENTS

MILLS STURTEVANT, M.D.
Resident Physician, Private Hospital for Scarlet Fever and Diphtheria Patients
NEW YORK

At present there is no generally accepted treatment for scarlet fever. It is a self-limited disease and nothing that we now know will shorten its course or abate its severity. Our work consists in the prevention of complications as far as is in our power and in so assisting Nature in her efforts at repair as to make convalescence as rapid as possible and recovery complete. Such is the number of possible complications and the scope of care desirable that an anatomic division has seemed a logical method of presentation of treatment. Therefore after a brief discussion of diet, the untoward possibilities will be taken up in this way rather in the order of frequency.

DIET

As long as the patient has a temperature above normal, the diet consists entirely of water, milk and malted milk or milk-sugar. This diet is also adhered to when the febrile albuminuria persists as a faint trace, with or without casts, after the fall in temperature. While it is realized that the weight of the patient should be the index to the number of calories given, the accompanying table has proved of great service as a rapid, rough guide to the amount of milk and water desirable and to its reinforcement with sugar. As some patients will be on this diet for three or four weeks, the amount of food given during this time has an important bearing on convalescence.

TABLE SHOWING AMOUNT OF MILK AND SUGAR GIVEN DURING FEBRILE STAGE (SEVEN FEEDINGS A DAY, AT TWO-HOUR INTERVALS)

	Age, Years	Calories	Amount Each Feeding, Ounces	Total Ounces Milk	Total Ounces Water
Children..	1- 2	600	4	28	28
Children..	2- 6	1,000	6	42	42
Children..	6-15	1,350	8	56	56
Adults....	....	2,000 to 5,000	10	70	56

To the milk given to adults it is necessary to add 3 to 7 ounces of milk-sugar to make up the calory content.

The number of feedings will of course have to vary in different cases as the arrangement of sleeping hours, the amount of milk borne well at a time and the appetite of the patient are determined. If milk-sugar is well taken it provides a slight diuretic and slight aperient action. In cases in which milk is not well borne, buttermilk may be given. Orangeade, lemonade and cream of tartar drink flavored with lemon may be used freely in place of water.

When the temperature is normal and has been normal for twenty-four hours, farinaceous foods may be given. A satisfactory way is to add new foods gradually: for example, cream soups with crackers are given the first day the diet is increased, milk toast the second, rice or farina pudding the third and so on. As the patient is given farinaceous foods, and these come more and more to replace the milk, it is necessary to exercise some care that the total amount of fluid in twenty-four hours be kept up. It is desirable that in patients over 6 years old not less than 100 ounces of fluid be given. As solid foods are added, the milk can be replaced by water.

It is not wise to take further liberties with the diet until the twenty-first day. The danger of giving nitrogenous foods increases as the twenty-first day is approached and should not be risked no matter how mild the case. On the twenty-first day fish may be given, then green vegetables, then bacon, to which are then added other red meats, chicken, meat soups, tea, coffee or cocoa and last of all eggs. The diet list in use at present at the hospital follows:

Milk Diet.—When specially ordered, milk-sugar, malted milk, buttermilk, cream soups and top milk mixtures.

Farinaceous Diet.—Crackers, bread, toast, zweibach, arrowroot, rice, cornstarch, farina, and preparations of these, baked potatoes, barley jelly, other cereals, stewed prunes, and baked apple with cream.

Light Diet.—In addition to the above, fish, green vegetables, bacon.

General Diet.—Red meats, fowl, meat soups, pastry, tea, coffee, cocoa and eggs.

SKIN

For the discomfort during the rash, the skin may be anointed with cocoa butter or cold cream. If the itching be excessive, there is nothing which gives as much relief as gently sponging with 0.5 per cent. dilution of liquor cresolis compositus. At the hospital a proprietary emulsion of soap with tincture of benzoin and boric acid is used a great deal. No greasing is done during desquamation unless there is discomfort. Control of the desquamated epithelium is not so much a factor in a contagious-disease hospital, as the excretory function of the skin is deemed more important.

Means to hurry the process of desquamation are many. It is impossible to give any one best method. As the soles of the feet are the last to desquamate, it is their treatment with which we are concerned. As soon as patients are up and about they are encouraged to soak their feet well each day in hot water, after which the feet are rubbed with a rough towel or moist pumice stone. The bottoms of the feet may be painted with tincture of iodin. Salicylic acid ointment, 6 per cent., may be bound on over night.

HAIR

Itching of the scalp during the first three weeks is treated and prevented by washing with alcohol. This should be followed by rubbing in a small amount of white petrolatum. At the end of the fourth week and twice during the fifth and sixth weeks the hair and scalp are washed with tar soap, then with the following hair lotion:

℞	Gm. or c.c.	
Hydrargyri chloridi corrosivi.....	.5	gr. iv
Boricii acidi	20	gr. cl
Glycerini	30	ʒ ½
Alcoholis	120	ʒ iv
Aquæ .....q. s. ad	250	ʒ viij

The hair and scalp are then dried thoroughly and the following hair tonic well rubbed in:

℞	Gm. or c.c.	
Quininæ sulphatis	4	gr. lx
Olei ricini	30	ʒ j
Olei bergamottæ	.5	ggt. v
Olei neroli	.5	ggt. v
Spiritus ammoniæ aromatici q. s ad	250	ʒ viij

Mix and dispense with "shake" label.

EYES

For the conjunctival injection seen in many cases during the first week, cold boric acid compresses and exclusion of any bright light from the room are sufficient.

In the more severe cases, a drop of epinephrin chlorid in each eye followed by a drop of 5 per cent. argyrol is indicated.

THROAT

The care of the throat can well be summed up in one word—cleanliness. This is best accomplished by irrigations of 4 per cent. solutions of sodium bicarbonate, or lime-water, or normal saline. At the hospital the last is used. The irrigations are given at a temperature of 110 F. with a fountain syringe, the bag of the syringe held about one foot above the head of the patient. The patient is turned on his side, protected by a rubber blanket, and the saline at low pressure allowed to run over first one, then the other, tonsil. The head is turned enough so that the fluid after bathing the tonsil runs out of the mouth and into a pus basin. Sometimes a little practice is necessary before this can be done satisfactorily, but on the third or fourth attempt usually the irrigation is borne very well and the patient experiences immediate and marked relief. Irrigations should never be given with much force as the exudate may be forced back into the pharynx and so to the ears. In children too young to cooperate with the nurse, a sheet is pinned about the patient securing the arms and legs, a small roll of gauze bandage placed between the teeth and the irrigations given on a small dressing table. Sometimes with mild throats it is sufficient to cleanse the tonsils gently with a cotton pledget, soaked in sodium bicarbonate solution, wound about the nurse's finger.

Gargles are not used. Some relief is often obtained by a lozenge of the following composition:

℞	Gm. or c.c.	
Mentholis	.007	♏ 1/80
Olei anisi	.002	gr. 1/35
Acidi benzoici	.005	gr. 1/12
Eucalyptolis	.004	♏ 1/16

Small pieces of ice held in the mouth sometimes give distinct relief.

External treatment may be in the form of heat, cold or wet dressing. For routine treatment the throat-bag filled with cracked ice is used. This seems to give more relief and better results in most cases than any other measure. There is, however, the exceptional case in which large, hot poultices of flaxseed are to be preferred. The use of wet dressings will be discussed under "Lymph-Nodes."

NOSE

The nose should never be irrigated unless both middle ears are involved. Drainage of the nose is accomplished by keeping the secretions as fluid as possible and by blowing the nose properly. Rendering the secretions fluid is best accomplished by putting in each nostril white petrolatum, which is made slightly more fluid by placing the tube in hot water before each application. This should be done four or five times in twenty-four hours. The patient should be taught to blow the nose gently and frequently and not to sniff secretions back into the nasopharynx. In conjunction with the petrolatum treatment, if there is congestion and swelling of the mucous membrane, the nose is sprayed with eucalyptol and menthol 1 per cent. in liquid petrolatum. When this treatment does not suffice and the patient does not breathe readily through the nose, a cotton swab on an applicator, the swab soaked in epinephrin chlorid or adrenalin inhalant, is applied to each side of the nose. This is followed by a similar application of 20 per cent. argyrol.

When the acute stage is over and swelling of the mucous membrane with exudate persists, the glycerite of tannin either full strength or diluted with water often gives good results. This may be used to advantage in a similar condition of the throat.

EARS

Proper care of the nose and throat is the best preventive of middle-ear trouble. Patients should always be warned against inflating their ears, as many discover that this is temporary relief from the sense of fulness they experience as a result of swollen eustachian canals.

Daily examination of the tympanum should be made by the physician. This is very important. The onset of many cases is very insidious and indeed the first warning may be a discharge from the ear. The tympanum may rupture and pus be discharged from the middle ear with no warning of pain or rise of temperature.

If otitis media does occur, incision of the tympanum should be performed early. This may or may not be followed by irrigations of warm sodium bicarbonate solution every two hours. If irrigations are not given, the canal should be kept open by cleaning thoroughly with cotton on an applicator, the frequency depending on the amount of discharge.

The prophylaxis of mastoiditis is the proper treatment of the otitis media. Throat-bags filled with ice should be applied to the mastoid as soon as the tympanum is incised. Or cold may be applied to the mastoid region by means of the Leiter coil. With tenderness over the antrum relief is often obtained by means of leeches placed over the mastoid. Cases of otitis media should be seen daily by someone familiar with the ear conditions of scarlet fever. It is such a person who should decide when to operate.

LYMPH-NODES

With the onset of scarlet fever there is a polyadenitis of varying intensity. Nodes other than the cervical rarely need attention. Care of the nose and throat contribute to preventive treatment of these nodes. At the Hospital for Scarlet Fever application of the ice-bag to the throat during the first week of scarlet fever may be said to be almost a routine procedure. This treatment is sufficient for most cases. Occasionally there is a case which does better with poultices. For the case which does not improve with hot or cold applications, dressings of the following are given:

℞	Gm. or c.c.	
Plumbi acetatis	60	ʒ iv
Aluminis pulveris	60	ʒ iv
Alcoholis	250	ʒ xvi
Glycerini	120	ʒ viii
Aquæ	1000	ʒ lxiv

Mix and dispense with "shake label."

Huge, very wet dressings of this are kept on the enlarged nodes continuously. These dressings are most efficacious at the temperature of melting ice. With this treatment there has not been a case of suppurative adenitis in nearly 400 cases of scarlet fever at the hospital. If suppuration takes place, incision and free drainage are indicated.

LUNGS AND PLEURÆ

Bronchopneumonia, which may exist, is usually an additional focus in a severe general infection, and should be treated as when occurring elsewhere.

Pleurisy is a troublesome complication, usually occurring in the third or fourth week. All effusions, no matter how small, should be aspirated early. Pleurisy

in scarlet fever is likely to become suppurative, when operative interference is indicated.

Scarlet fever in a tuberculous subject is a very serious thing. There is usually a lighting up of the tuberculous process. In such cases the danger of the tuberculosis becomes greater than the risk of nephritis and a more liberal diet should be given. Bacon which has been soaked in cold water several hours can be given early with little risk. Cod liver oil, if borne well, should be given. In many cases it seems desirable to give two eggs in milk per day. One egg can be beaten up in a pint of milk to be taken in two instalments, two hours apart with a glass of water in between. Fresh air is important. The rooms at the hospital are supplied with fireplaces which give forced ventilation. The roof of the building is available for patients at all times of the year.

HEART

The systolic murmur heard over the precordium, which is described by many authors as a symptom of scarlet fever, may be readily prevented in most cases. It is due to one of, or a combination of, three causes, anemia, relative mitral insufficiency and endocarditis. The anemia may give a hemic murmur, or be a contributing factor in a relative insufficiency by throwing extra work on a heart muscle, the tone of which has been diminished by the virus of the disease. If the hearts of the patients who are allowed to get out of bed the second and third weeks of the disease are watched, they will be seen in many cases to dilate slightly and a systolic murmur will appear at the apex. An active endocarditis, either simple or infective, may appear. This is more likely in cases which are very septic, with high temperature.

It is the custom at this institution to give iron to all patients after the temperature has remained at normal for twenty-four hours. The preparations used are either ferrous carbonate powder in capsule, five grains three times a day, or the following:

℞

Iron and potassium tartrate.....	1 part
Glycerin	2 parts
Water enough to make.....	12 parts

Mix. One teaspoonful in water three times a day.

Patients should be kept in bed until the twenty-fourth day of the disease, with one pillow until the eighteenth. It is desirable that the patient should attain the sitting position gradually. Two pillows may be allowed on the nineteenth day, three the twentieth, and so on, five pillows being so arranged as to allow sitting up in bed. On the twenty-fourth day an hour in a chair beside the bed may be allowed. Progress from here on should also be gradual, permitting a little longer time up each day, and a little more activity, the heart and pulse being carefully watched meanwhile as a guide to latitude in this direction. It is rare that digitalis is indicated. For routine use, as has been advised, it is surely too much of a kidney irritant.

During the early weeks of the disease the patient not only should be kept in bed but also should be kept quiet. This depends a great deal on the nursing. The allaying of discomfort and the prevention of consequent tossing and turning by sponge baths, by hot water bottles to cold feet, by frequent smoothing of a well-made bed and by the many things that comprise nursing comfort do much to conserve the heart. Insuring a proper amount of sleep in twenty-four hours is also important. The bowels should move freely, daily, by catharsis if necessary. Fresh air should be provided in abundance. At the Hospital for Scarlet Fever a screen is placed between the window and the bed and the window always kept open. This, with the open fireplace, gives forced and adequate ventilation. At this hospital also convalescent patients are moved to a different floor in the building as soon as up and about. A recreation-room is provided with sound-proof doors separating it from the rest of the hospital.

If endocarditis, either simple or infective, occurs, the period of rest is of necessity longer. Salicylates are of doubtful value in simple endocarditis. Vaccines and serums may be tried in the infective variety. Pericarditis either simple or purulent may occur. The treatment is the same as when coming in the course of any other acute infection. Myocarditis is rare. When it does exist the treatment is as elsewhere.

BLOOD

Just what blood condition we have to deal with in scarlet fever in the so-called septic cases, we shall probably know better when we know what the infective agent of scarlet fever is. That there is a specific virus apart from the streptococcus is suggested by the different courses of very serious cases when large doses of polyvalent streptococcus serum are injected. Some cases seem to show very marked improvement, while others show no reaction whatever. This suggests that where there is streptococcus septicemia the serum in sufficient dosage is of value, and that where the symptoms are due to another infective agent the serum is useless. At present we can say that the serum should be administered in all septic cases by someone experienced in its use.

STOMACH AND INTESTINES

Nausea and vomiting are very constant symptoms at the onset of scarlet fever. The nausea may be slight, the patient vomiting once or twice the first day, with immediate relief. Or the nausea may be marked and the vomiting severe and prolonged. In the latter cases there is pain over the epigastrium and the area of the stomach; hyperesthesia is very marked, sometimes so severe that the patient cannot bear the weight of the bedclothes. Bismuth subcarbonate in doses of 60 grains usually relieves these cases. If this fails 6 drops of 1 per cent. solution of cocain in a wineglassful of water every fifteen minutes for four doses will help.

During the latter part of the fourth week and the fifth week heartburn is sometimes a very distressing symptom. This is relieved readily by milk of magnesia in teaspoonful doses. It is well to cut down the diet somewhat for a few days, particularly such food as may be taken after 6 p. m.

Constipation is the rule in scarlet fever, though in some cases there is diarrhea at the onset. Our choice of a cathartic should be one which does not irritate the kidney, and one which does not reduce too much the bulk of the urine. A tea made of senna leaves fills these requirements and is very useful during the febrile period. Rhubarb, aloes and cascara sagrada are other anthracenes which may be used. Castor oil may be used alternately with one of the anthracenes. As a general thing salines are not desirable, as they decrease too much the bulk of the urine. The jalapin and colocynthin groups, the mercurials and the aromatic preparations of the anthracenes should all be avoided, as they produce kidney irritation.

KIDNEY

The diet outlined above has been selected with the idea of keeping up the weight and strength of the patient with the smallest possible amount of kidney irritation. The amount of fluid recommended is designed to keep the amount of urine between 70 and 80 ounces for twenty-four hours. The specific gravity of the urine should be maintained below 1.010. There can be no doubt in the mind of anyone who has watched and examined the urine in a large number of scarlet fever cases in which all kinds of diet have been tried that a diet high in proteid, particularly a diet with eggs, during the first four weeks of scarlet fever is very dangerous. The urine should be examined each day for albumin and casts. Cream of tartar lemonade should be given to make the urine bland. If with a sufficient amount of fluid taken by the patient the urine continues to be of a specific gravity of over 1.010 or of a small amount or both, the acetate, bicarbonate and citrate of potassium, 7½ grains of each, in water may be given every three or four hours. Another procedure which may give warning of kidney insufficiency, even before urinary findings are significant, is the daily taking of blood-pressure.

Many figures have been published as to the frequency of nephritis during scarlet fever. One reason for the great variation in results may be due to the undoubtedly different character of different epidemics. Another reason may be that different reporters have different things in mind when they speak of nephritis. It is likely that there is cloudy swelling of the kidney in most cases of scarlet fever, while a nephritis that lasts for weeks or from which the patient does not recover is rare when proper precautions are taken. When nephritis does occur treatment should be begun early, the accessory channels of elimination being made use of to relieve the kidneys, the urine made bland with saline diuretics and increased by forcing fluids, the diet restricted to milk.

JOINTS

As the temperature falls it is a common thing for the patient to complain of transient pains and stiffness in the joints. The small joints of the hands, shoulders, knees and ankles are the joints most often affected and in this order. Occasionally the pain is severe and there is heat, redness and swelling. Prevention of this condition is attempted by the use of outing flannel night clothes, the administration of alkalies and proper catharsis. When it does occur a brisk saline purge should be given. Alkalies should be administered until the urine is alkaline. Salicylates may be given to allay pain. Unlike rheumatism friction helps these joints and if the following lotion be rubbed into the joint well two or three times a day there will be considerable relief.

℞

Olei gaultheriæ	1 part
Mentholis	50 parts
Petrolati liquidi	1 part

Rarely these joints will go on to suppuration. Surgical procedure is then indicated.

NERVES

The nervous symptoms follow roughly the height of the temperature as to their severity. For the milder cases with slight nocturnal wandering, with bad dreams and night starts, a warm sponge bath and 15 grains of the ammonium bromid are usually sufficient. For the more severe delirium the patients are packed in blankets wrung out in hot water. This may be supplemented by 5 grains of acetphenetidin with ½ grain of codein. If a patient with a temperature of 106 F. is packed for ten minutes in blankets wrung out in water 103 F. his temperature will fall and his nervous symptoms be lessened. The temperature of the disease never requires treatment.

DIPHTHERIA

All patients with scarlet fever are kept in separate rooms. They are given individual bed-pans, urinals, thermometers, atomizers, medicine-glasses, irrigating-bags, solution-basins, feeding-tubes, all of these being marked with the patients' room numbers. A culture is taken from the throat of each scarlet fever patient on admission and again if a suspicious patch later appears in the throat. If Klebs-Löffler bacilli are present, antitoxin is given and the patient is removed to an isolated part of the hospital.

Foot of East Sixteenth Street

NEPHRITIS IN PREGNANCY*

JOSEPH B. DeLEE, M.D.
CHICAGO

Internists distinguish the following principal forms of renal diseases: acute nephritis and chronic nephritis. Of the latter there are two grand divisions, the parenchymatous, with its three forms, large white kidney, large red kidney and the secondary contracted kidney; and the chronic interstitial or primary contracted kidney, which is accompanied by cardiac hypertrophy and general arteriosclerosis. The accoucheur, in addition to these, must consider the kidney of pregnancy, its aggravated form, the so-called pregnancy nephritis, and the kidney changes which are a part of eclampsia. Since even the internists are not in perfect accord regarding the classification of their physical findings, and admit that the various recognized varieties of disease may be associated or co-related, it is not to be expected that clinically the accoucheur will be able to identify absolutely the many conditions presented for treatment.

Primary acute nephritis may develop during gestation from the same causes which operate outside of it; for example, exposure to cold, chemical poisons, ptomainemia, scarlatina, angina and septic affections. Antecedent septic processes make the kidney more vulnerable, a tendency which is aggravated by pregnancy. Acute nephritis cannot be clinically differentiated from the "pregnancy nephritis" which often leads to eclampsia. That a previously healthy pregnant woman, after a severe angina or exposure to cold, develops nephritis and convulsions is an observation I have made twice. The discussion of such cases properly belongs to eclampsia, with which it is practically though not pathologically identical.

Chronic nephritis may exist before pregnancy, the patient being hardly aware of the fact, until the strain thrown on the kidneys by advancing gestation brings the latent disease to the surface. Again, repeated abortions in a woman cause an examination of the urine to be made, and a slumbering nephritis is discovered. In other cases a known nephritic becomes pregnant. In all these instances, the results are the same and may be considered under two headings, the effects of gestation on nephritis, and the influence of nephritis on the reproductive function.

* Read in the Section on Obstetrics and Gynecology of the American Medical Association, at its Sixty-Third Annual Session, held at Atlantic City, June, 1912.

EFFECTS OF PREGNANCY ON NEPHRITIS

Chronic parenchymatous nephritis is always unfavorably affected by the advent of gestation, and an acute exacerbation is almost always observed. It begins to show in the early months, which is contrary to nephritis incidental to pregnancy the concomitant of eclampsia. At first there are puffiness of the eyelids and of the ocular conjunctiva and general anasarca, which does not disappear in the recumbent position. The edema affects the legs, which may be elephantine in size and the vulva, which may be transfigured into two immense, white, translucent, watery glistening tumors. Hydroperitoneum, hydropleura and pulmonary edema may occur; pallor, and waxy, pasty skin, high pulse tension (even in this form) are also to be noted. Headache, neuralgias, epigastric pain, disorders of the special senses, especially amaurosis, nausea and vomiting are found, but not so marked or so commonly as in pre-eclamptic toxemia. Albuminuric retinitis is very serious and may leave permanent blindness. Convulsions occur, but in less than one-third of the cases. The urinary findings are similar to those of pre-eclamptic toxemic nephritis, albumin, hyaline, granular, cellular casts, renal epithelium, white and finally red blood corpuscles. Urea is diminished, the total solids reduced, the daily amount of urine much less than normal.

Labor has a noxious influence on the disease and often produces alarming symptoms: pulmonary edema, collapse, which may simulate pulmonary or cerebral embolism, also apoplexy and suppression of urine. Anemia is badly borne by nephritics. If anesthetics are given and if the labor is protracted and exhausting, extensive damage may be done to the kidneys.

The puerperal processes do not exert a good influence either; sepsis is more common and nephritics do not bear infection well. While the urine usually clears up rapidly after delivery, the restitution of the kidneys is never complete, permanent structural damage having been wrought, and the action of repeated pregnancies is so bad that death is hastened.

Chronic interstitial nephritis is more frequent than the parenchymatous and is characterized by polyuria of low specific gravity, with little urea and a small amount of albumin, few casts, and these usually of the hyaline variety. It is accompanied by high arterial tension (200 to 240 mm.), thickening of the vessels and hypertrophy of the heart. The effects of this form usually appear later in the pregnancy, but the symptoms of urinemia already mentioned occur with almost equal frequency, and, especially in the latter months the distinctions between the various forms of nephritis become blurred. Retinitis, apoplexy and heart collapse are more frequent with cirrhotic kidney; extensive edema and convulsions are less frequent. I have as yet seen no convulsions with this form of Bright's disease, but several cases of pure uremic coma.

EFFECTS OF NEPHRITIS ON GESTATION

All forms of nephritis have a very bad influence on the pregnancy, abortion and premature labor being common (66 per cent. Hofmeier), and Seitz found that only from 20 per cent. to 30 per cent. of the children survived. One of the causes of habitual death of the fetus, and abortion and premature labor is chronic nephritis.

Labor in nephritics is slow, the uterus is indolent, the edema of the vulva predisposes to perineal lacerations, and in one of my cases the edema of the pelvic structures prevented the head from engaging in the pelvis. Even after the delivery, which was very laborious, the cervix could not be drawn down to the vulva as usual because it was anchored up high by the infiltrated broad ligaments. Abruption of the placenta is not infrequent. Postpartum hemorrhage is common because of the atony of the uterus. Involution is slower.

Many of the children are born dead and more or less macerated. The death of the fetus is caused: (1) by the hemorrhages, the white infarcts and the sclerosis of the blood-vessels of the placenta, which cut off the fetal circulation and are frequently found (80 per cent.) (Simpson and Fehling called attention to these facts, and the French called the condition placenta albumenurique); (2) by the frequent abruption of the placenta in labor; (3) by the accumulation of toxins in the blood which alter the villi, making them unfit for the function of nourishing the child, or which change the deciduæ making their blood-vessels brittle and thrombotic and the placenta liable to separation (a degenerative endometritis); in the first instance death of the fetus occurs, in the latter hemorrhages into and separation of the decidua with abortion resulting; (4) by poisoning of the fetus by the toxins which pass over from the mother; (5) by interruption of the pregnancy by eclampsia.

The children of nephritics are usually puny and pale, they thrive poorly at first and may show albuminuria with casts. The infarcts and hemorrhages have so reduced the active area of the placenta that the fetus does not receive enough food — it starves *in utero*. The placenta may be edematous.

DIAGNOSIS

Nothing need be said here on the diagnosis. I would, however, express my own views on a few special matters. First, on the significance of albuminuria. Schroeder found albuminuria in 5 per cent. of pregnant women; Fisher in 25 per cent.; Jaeger in 70 per cent., using the finest tests. The latter believed it to be due to the lordosis of pregnancy, on Jehle's theory. My experience is that renal albuminuria — by the coarser tests, hot and cold nitric acid — does not occur in healthy pregnant women. Whenever I have found it and proved its renal origin there have been other evidences of renal disease, and I always regard it with suspicion, and guide treatment accordingly. In all my cases the outcome has justified the course of procedure. Second, the tests of the efficiency of the kidneys, especially the phenolsulphonephthalein, have all been unsatisfactory indexes of renal functioning in the medical cases. In surgical kidney, pyelonephritis, etc., they may be of more value.

Low urea output is of relatively little importance, but if the amount excreted persists below 6 gm. daily, a careful search is to be made for evidences of renal involvement. In one case, I induced labor near term because of a persistently low urea output without albuminuria. In the next pregnancy, signs of a real nephritis appeared early, requiring the induction of abortion. It is usually impossible to differentiate the various forms of nephritis from each other during gestation because the urinary and clinical pictures are blurred, and it is not essential for treatment.

PROGNOSIS

Both mother and child are seriously jeopardized by chronic nephritis, the mortalities being about 30 and 70 per cent., respectively. Reserve must be exercised in promising a cure by the induction of abortion or premature labor, because the condition may not be the simple kidney of pregnancy but a real, latent nephritis which has been awakened into activity. The main dangers of

nephritis are edema of the lungs, hydropericardium, hydropleura, enormous anasarca, retinitis, which may lead to permanent blindness, apoplexy, convulsions and acute heart collapse. A combination with heart disease is very fatal. Hyperemesis is also bad, and Basedow's disease takes on a foudroyant course.

TREATMENT

Women with chronic nephritis should not marry, and if married should not conceive. If a woman had eclampsia or symptoms of renal inefficiency in her first pregnancy, a second should not be allowed until all the evidences of renal disease have remained absent for at least a year. Should pregnancy occur with diseased kidneys, redoubled watchfulness is required.

One may divide the cases into two groups.

1. Nephritis is discovered after the twenty-eighth week of pregnancy.

While a cure cannot be affected during gestation, most authors advise tiding the patient along to term if possible, but to induce premature labor in the presence of threatening symptoms. The details of the medical treatment need not be gone into here. I wish only to express my disapproval of hot sweats and baths. Two cases of cardiac failure with death have changed my view of this procedure. Further, I never could convince myself that they ever do any good.

In eclampsia the imminence of convulsions or coma decides the question of the induction of labor, but in nephritis other dangers may indicate interference. Albuminuric retinitis is a positive indication for the immediate termination of gestation. Immense anasarca and a laboring heart which does not respond to treatment also are good reasons. Then the dangers which threaten the child must be considered — abruptio placentæ and hemorrhages into it — though to discover these accidents in time to save the infant is not always possible. For this reason and because our knowledge of nephritis is so uncertain and our reliance on treatment so insecure, I usually interrupt pregnancy as a matter of principle when the child has fully passed the period of viability. The exceptions of course are those cases in which very satisfactory improvement ensues under treatment. The usual methods of inducing labor are employed but in critical cases vaginal cesarean section may be indicated.

2. Nephritis is discovered before the child is viable.

Some authorities (Schroeder, Fehling, Billings, Tyson, Edwards, Schauta and others) recommend the induction of abortion, holding that the injury to the kidneys, which is inevitable before the child is viable and, too, the poor chances of the fetus anyway make the continuance of the pregnancy precarious and useless. With these opinions mine agrees, but if the woman is near the period of viability I try to tide her along for a few weeks, to give the child a better chance for its life. Of course the woman must stay in bed, on a milk and cereal diet, and a careful daily urinalysis must be made. In the early months, the pregnancy is interrupted on the first indication of renal trouble and, too, if the disease of the kidneys, while not retrogressing, remains stationary under treatment. My experience has shown that these patients always grow worse and require interference before viability of the child; it is, therefore, injudicious to wait, because the kidneys will suffer irreparable damage in the meantime, while also the child very frequently dies from the effects of placental infarcts, thus defeating the object of the expectancy.

During labor, nephritics require especial care. It is wise to watch the heart action closely and to be prepared for the same emergencies that occur with heart lesions. Sudden edema of the lungs, or attacks resembling cerebral embolism, may require rapid extraction. It may be necessary to puncture the swollen labia to allow delivery. Antiseptic douches may not be employed; bichlorid of mercury especially should be avoided. Ether is the anesthetic of choice, but as little of it as possible is to be used.

In the puerperium the usual treatment is kept up. Nursing is to be permitted only if the puerpera is in good condition and the renal symptoms are disappearing.

15 East Washington Street.

ABSTRACT OF DISCUSSION

DR. HENRY SCHWARZ, St. Louis: Dr DeLee has failed to differentiate between the cases of nephritis which have existed before pregnancy occurred and between those which originate during pregnancy. While I agree with him that the "kidney of pregnancy" is never a normal condition, I insist that it is a condition peculiar to pregnant women, as has been pointed out by Leyden; it differs entirely from parenchymatous nephritis, because the kidney can return to a perfectly normal condition after pregnancy is terminated; the treatment called for by a "kidney of pregnancy" is altogether different from that which is indicated by true nephritis preexisting to pregnancy or arising during its course. Dr. DeLee is right in stating that for cases of true kidney disease complicating pregnancy no hard and fast rule of treatment can be laid down; each case has to be sized up individually. As in the case of women with tuberculosis or heart disease, women with kidney disease had best not marry, and if they are married, should avoid becoming pregnant. If, however, such patients become pregnant, we watch them closely and do the best we can for them. I have never seen a case of preexisting nephritis lead to true eclampsia; there may be convulsions in such cases, but these are of the uremic type. It is a different matter when kidney complications arise during pregnancy; at present, we are all trying to keep pregnant women under close observation in order to recognize the first symptoms of such complication. At the Washington University Dispensary we employ a so-called prenatal nurse, who visits prospective mothers at frequent intervals as soon as they have registered at the dispensary; the frequent examinations of the urine, along with the instruction which the nurse gives our patients, regarding the hygiene of pregnancy, enables us, I am quite sure, to prevent many of the so-called renal complications of pregnancy, and we do find that, whenever there is albumin in a urine which before was free from albumin, a strict regulation of diet and other measures will in most cases cause that urine to clear up.

DR. J. B. DELEE, Chicago: Most of the books say that 3 to 5 per cent. of so-called healthy women in pregnancy have albuminuria. Fisher found 25 per cent., and during labor, 50 to 60 per cent. While not disputing this, I wish to state my own experience. A normal woman during pregnancy should not have albuminuria. The athlete after much exercise may develop albuminuria. Hyperlordosis is said to produce albuminuria. When a woman develops albuminuria, discovered by the ordinary tests, there has always been, in my experience, a pathologic foundation for it.

The Physician as a Business Man.—For attending a case of pneumonia, typhoid, appendicitis, childbirth, or plain imagination, a physician is entitled to reasonable compensation, depending, first, on his personal valuation of his own services, secondly, on the time devoted to the effort, and finally, on the prevailing standard of fees in the community. The patient's prominence or wealth has little or nothing to do with the amount of the fee justly charged; it should not affect the doctor's fee any more than it should affect the price of an automobile or a pair of shoes. A doctor must be either a business man or a beggar.—*Delaware State Med. Jour.*

A PLEA FOR MORE CAREFUL TECHNIC IN DOING INTRAPELVIC RECONSTRUCTIVE WORK *

W. FRANCIS B. WAKEFIELD, M.D.
SAN FRANCISCO

One of the most valuable lessons that I have learned is that extensive adhesions can result from simple intrapelvic work, without infection playing any recognized part. Several times I have had to reopen the abdomen in patients on whom I had previously performed some simple operation, such as shortening the round ligaments, and have been amazed at the extent of the anatomic distortion found in the pelvis.

Until comparatively recently, I failed to realize the extent to which peritoneal surfaces could glue themselves together through the agency of the serous exudation that follows such simple trauma as that produced by multiple needle and volsellum puncture. The fact that simple serous exudation can terminate in vicious multiple adhesions is denied by some who believe infection to be the necessary causative factor in their production. Those who defend this view have not given the subject sufficient experimental study. Adhesions, indubitably, may follow infection; they do so, however, because of the serous exudate that is engendered. Mechanical trauma, often of the simplest character, will produce the same fundamental conditions. Correlation of facts, deduced from private work performed under ideal environment, as well as from animal experimentation, has clearly demonstrated to me that very consequential massing together of pelvic viscera can occur in non-infected cases along suture lines or wherever serous surfaces are punctured, lacerated or abraded. If we accept this as a fact, we are then called on to alter some of our practices.

In much pelvic work where diseased structures have to be resected or removed, intrapelvic suturing and other mechanical trauma cannot be avoided. The best that can be done in this class of work is to inflict the least possible amount of injury. If intrapelvic structures are not roughly handled, if natural lines of cleavage are carefully followed, and if peritoneal planes are brought together with fine Lembert sutures so that all the raw edges are turned in, it is remarkable how much can be accomplished without material damage to the visceral surface of the pelvic peritoneum. And the future functional condition and anatomic relation of the pelvic viscera will bear direct ratio to the extent of peritoneal injury exposed to visceral contact. The opening in the parietal peritoneum should be closed by a running back and forth suture placed below the cut edges, so that they are turned outward.

Operations performed for the removal of pathologic structures that menace life and health are vitally imperative, and whatever trauma is necessary is justified by the end attained. In minimizing the amount of peritoneal injury the importance of deft and gentle manipulation of the pelvic viscera cannot be overestimated. Sharp-pointed instruments, which puncture and lacerate, should have no place in pelvic surgery. They should be replaced by an altogether different type of instrument. For instance, for general manipulation of the pelvic viscera, other than the uterus, the safest and most efficient instrument is the ring sponge holder, with the blades protected by a piece of rubber tubing. It can be used with impunity to handle the intestines, the fallopian tubes, the ligaments, or the peritoneal reflections. It holds firmly but without damage. For manipulation of the uterus, I had constructed, for my own use, an instrument similar in principle, made to conform to the shape and size of that viscus.[1]

Turning from what might be called essential operations, we come on a class of operations which are not necessary but expedient, and are designed to correct mechanical defects. The best example of this type of operation is found in the surgical treatment of uncomplicated retroversion.

These operations, if done at all, should at least afford reasonable guarantee against postoperative consequences which may be more serious in their nature and effects than the original faulty dynamics. And, let me state here, some of our intrapelvic methods for shortening the round ligaments may be followed by adhesions as extensive as I have ever seen subsequent to any operative procedure.

To obviate the possibility of pernicious adhesions resulting from this class of work, it becomes almost imperative that in performing these operations we choose some method which will permit of the correction of the malposition without creating any intrapelvic injury. This eliminates from consideration all those manifold procedures which shorten the round ligaments, or other ligamentary structures, intrapelvically. There are many excellent ways of shortening the round ligaments extra-

Guarded viscera holder

pelvically. I do not presume to suggest the exact method; that is a matter of individual choice. I only urge that whatever method be adopted care be exercised to strip back the peritoneal reflections thoroughly on to the ligament, so that the patient will not subsequently suffer from the nerve-racking "dragging" sensation that is so often experienced when the peritoneum has been pulled up into the abdominal wall. Further, I urge that the ligamentary loops be given secure anchorage and be smoothly disposed of beneath the aponeurosis of the external oblique.

Some surgeons prefer not to open the pelvic cavity at all; others think wisely of combining intrapelvic inspection with extrapelvic operation. The latter course seems preferable, provided we can refrain from being unduly meddlesome; we are inclined to be surgical vandals when we get inside the pelvis.

The ovaries are the chief objects of attack. The so-called cystic ovary has been the excuse for much surgical mutilation. Retroversion of the uterus and cystic ovaries go hand in hand. The impaired pelvic circulation produces chronic inflammatory conditions in the ovary which result in a limited number of small graafian follicle or corpus luteum retention cysts. In the majority of instances they are not really pathologic. Little, if anything, is gained by resecting them. Other retention cysts may form on the resected ovary; besides which

* Read in the Section on Obstetrics and Gynecology of the American Medical Association, at its Sixty-Third Annual Session, held at Atlantic City, June, 1912

1. Since writing this paper I learn that Schonenberg of Chicago has been using a uterine elevator similar to mine and I gladly accord him priority.

we are likely to have adhesions form round and about the site of mechanical insult which will transform a free ovary to a fixed one. With the pelvic organs restored to normal position, mechanotherapy may usually be relied on to enable the cystic ovary to take care of itself without surgical interference. I was formerly a very enthusiastic advocate of ovarian resection. After resecting about two hundred ovaries and carefully studying the results, I am forced to the conclusion that resection of an ovary is rarely advisable. If an ovary is grossly pathologic, remove it; if it is not grossly pathologic, leave it alone.

Operations of expediency, then, should be so planned and so performed that the patients, many of whom are young girls, will not suffer any deleterious consequences therefrom. They must be reconstructive, not destructive; by means of them healthfulness must be engendered, not endangered.

1525 Sutter Street.

ABSTRACT OF DISCUSSION

DR. FRANK T. ANDREWS, Chicago: The things I do in the matter of preventing adhesions class themselves under several heads. In the first place, prevention is what Dr. Wakefield speaks of in the use of his new retractors as opposed to the forceps. Then the repair of injuries done either instrumentally or otherwise in the handling of the peritoneum. That repair may be, of course, either the closing of lacerated surfaces or punctured surfaces or the burying or concealing of such points. Then again we have great planes of bleeding surfaces such as we get in digging out great pus tubes. We do not wish exactly to repair these; we do not wish to sew them up. These planes fall together and we use them because we want the adhesions. We have certain adhesions which we wish to sew and we deliberately go to work to irritate the peritoneum because we have at times certain uses for these adhesions which produce adhesions of other organs.

DR. T. J. WATKINS, Chicago: I concur in all that Dr. Wakefield has said and wish to call attention to two or three points. One is to emphasize the importance of this paper. One is to state that postoperative adhesions are usually more difficult to deal with than postinfective adhesions, which emphasizes the importance of using the greatest amount of care to avoid adhesions. Another is the question of the relation of strangulated tissue to adhesions. My associate, Dr. Curtis, did some experimental work on about 150 rabbits last year and made numerous observations regarding adhesions. He found that long pedicles practically always produced bad adhesions. When tissues were studied to note the effect of strangulation on adhesion formation the strangulated tissue was found to be the part that became the most firmly adherent. Since then it has been our plan never to leave long pedicles and never to use a suture that leaves blanched tissue. If the tissue becomes blanched we take out the suture and replace it or cut off the tissue whose circulation has been much affected.

DR. W. O. HENRY, Omaha: I think it wise to do the least possible damage to the abdominal and pelvic organs in operation. In the second place, we should cover up, as far as possible and as carefully as possible, all raw surfaces; and, in the third place, I use freely the sterile olive oil which I have found to be very helpful in preventing adhesions.

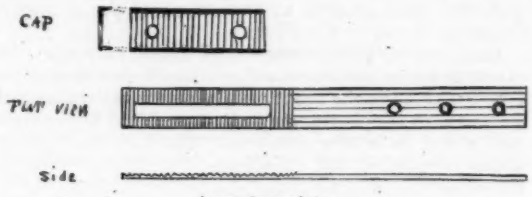
Pulmonary Tuberculosis and Chronic Appendicitis.—E. Sergent calls attention to the frequent difficulty of a differential diagnosis between pulmonary tuberculosis and chronic appendicitis, and cites the work of Faisans and Brunon of Rouen in this line. His article is published in the *Presse Médicale Belge*, 1912, lxiv, 427. He maintains that chronic appendicitis often leads to conditions favoring the development of tuberculosis, and that the overfeeding of tuberculous patients causes intestinal irritation that may bring on a chronic appendicitis or aggravate one already existing.

A NEW BONE-PLATE

P. T. GEYERMAN, M.D., HOT SPRINGS, S. DAK.
Surgeon to Our Lady of Lourdes Hospital

I trust that this modified plate will prove of undoubted value in certain cases. It is simply a modification of the well-known Lane bone-plate and has all the good features of the Lane plate with a well-merited improvement.

In the experience of most surgeons who have made use of the Lane plate, there has been more or less difficulty in getting an exact approximation of the fractured ends and unless extreme care is exercised in placing the screws there is likely to be a small space intervening. While this is not always



A new bone-plate.

objectionable, yet at times it may determine the difference between union and non-union. This I have had quite clearly demonstrated to me in two cases during the past six months.

This plate differs from the Lane plate in that it is adjustable at one end, the upper surface of which is corrugated and has a slot in place of screw-holes. Over this end fits a cap in which are located the screw-holes. The under surface of the cap is also corrugated, in order to give a firm hold when the screws are tightened. From this it can readily be seen that when the screws are driven nearly home the fractured ends may be tightly adjusted and the screws tightened.

This plate has been used in fourteen cases and in none of these has there been any slipping.

SALVARSAN IN PREGNANCY

HAROLD J. LEVIS, M.D., ROCHESTER, N. Y.

It seems to me that the following case is of interest in showing the possibilities of salvarsan as an eradicator of hereditary syphilis, abortion and still-birth.

The patient, Mrs. S., aged 30, married, has had two previous pregnancies; both children are healthy. The patient's husband acquired syphilis from an extramarital intercourse when she was about four months pregnant. He received two intravenous injections of salvarsan of 0.6 gm. each. After his second injection he informed me that his wife was showing marked symptoms of the disease. I told him that it was his duty to have treated his wife first, if not for her sake, for the sake of the unborn child. He said that his family physician (a homeopath) had told her that an injection of salvarsan in her condition was not to be thought of. Nevertheless, they talked it over and decided to consult another physician. He argued strongly in favor of an injection.

May 11, 1912, the patient presented herself and received 0.6 gm. of salvarsan intravenously. At that time she was about eight months pregnant. Her condition was pitiable, both mentally and physically—mentally because of her diseased condition, for which she was not to blame. Physically she presented a skin eruption, intense angina, osteocopic pains and a persistent cephalalgia. Her husband had to help her into the office. Four days later she presented herself to report progress. The transformation was truly marvelous. She stepped into the office unassisted. Her symptoms had completely disappeared.

She received a second intravenous injection June 6, 1912, at 9 p. m. The next day at 5:45 and 6 a. m. twins were born, both healthy. I examined them again on July 25, and at that time they showed none of the classical symptoms of hereditary syphilis.

660 Lake Avenue.

DISAPPEARANCE OF ANGIONEUROTIC EDEMA AFTER APPENDECTOMY

C. P. OBERNDORF, M.D., NEW YORK

In connection with the issues raised by Wiel[1] in regard to angioneurotic edema, namely, the symptomatic character of the affliction, the association of disturbances of the gastro-intestinal tract and the consideration of surgical interference which demands the most delicate judgment, the following case, which I was able to observe very closely, is of interest.

The patient, aged 37, has a negative family history with the exception of a slightly neurotic tendency in the mother. He has never suffered from any other sickness with the exception of scarlet fever and chicken-pox in early childhood. Though physically of a hardy and strong development, mentally his make-up is high-mettled, volatile and tense.

Although from the age of 8 he had suffered intensely from chilblains, there were no other vasomotor disturbances until 1904, when, while working under some stress, he suddenly developed a large circumscribed swelling on the lower lip. Thereafter, at irregular intervals but practically always when the patient had been subjected to some emotional strain or unusual application to his work, these suddenly appearing, red, tense, fairly well-circumscribed swellings reappeared, located most frequently on the extremities but also occasionally affecting the eyelids and lips. While on the face the edema caused only an extremely annoying sensation of itching, on the legs and forearm it produced severe pain.

While the patient had never suffered from constipation, the attacks of edema yielded quite promptly to saline purgatives or castor oil, followed by vigorous treatment with intestinal antiseptics, such as salol, betanaphthol or resorcin in large doses.

All the attacks were confined to the exterior of the body until September, 1907, when a sharp pain in the right iliac fossa, with appreciable tenderness and rigidity of the right rectus muscle and a rise of temperature to 101 degrees, strongly suggested an attack of appendicitis. Dr. J. A. Hartwell, who saw the patient in consultation at that time, was of the opinion that, while the attack had probably been one of appendicitis, an intestinal angioneurotic edema could not be excluded. The patient was advised that a recurrence would probably occur, but operation was deferred until a more pronounced attack indicating involvement of the appendix should be observed.

Following this abdominal attack the course of the angioneurotic edema continued unaltered, but there were no further indications of affection of the gastro-intestinal tract until August, 1910, when the patient was suddenly seized with intense pain in the right iliac region, with symptoms so typical of a severe appendicitis that an emergency operation was undertaken by Dr. C. W. Du Bouchet at the American Hospital in Paris. The laparotomy disclosed a perforating appendix, with abscess formation and a localized peritonitis. After a prolonged convalescence due to a fecal fistula the patient regained his normal excellent physical health.

Curiously enough, since this operation two years ago the attacks of angioneurotic edema have entirely disappeared though the emotional strains to which the patient has been subjected have not altered to any extent. More remarkable than this is the disappearance of the chilblains which had caused the patient intense pain since childhood, so that he has discarded his woolen socks in winter for low-cut shoes. Moreover, the hair of the scalp, which had been falling out in alarming quantities, grew in with renewed vigor following the appendectomy. It seems most certain that in this instance the angioneurotic edema was a symptom of a chronic intestinal toxic irritation and disappeared with the removal of the cause.

I must confess, however, that for the past three years I have been treating a very intractable case of angioneurotic edema, of six years standing, in a young woman of 28, in which I can find no evidence of intestinal irritation. The attacks usually follow an emotional strain and seem, after having been treated with the entire gamut of therapeutic agencies ever suggested, to yield most rapidly to arsenic and pituitary extract, each in small doses; but the effect is very transient. In this instance I am compelled, for want of a more accurate determination, to consider the case one dependent on an unstable vasomotor system—undoubtedly an entirely unsatisfactory explanation of the phenomenon.

249 West Seventy-Fourth Street

1. Wiel: Angioneurotic Edema, THE JOURNAL A. M. A., April 27, 1912, p. 1246.

Therapeutics

THE CARE OF INFANTS

(Continued from page 543)

NUTRITION

If the mother is ill or becomes ill, the child must be artificially fed. If the child loses weight, or does not gain weight on the mother's milk, it must be artificially fed. The child may hold its own weight while growing, and yet be deficient in general nutrition. In other words, it may be actually losing in strength and yet gaining in height. It has been shown that young animals may continue to grow on insufficient nutriment, and the child may grow tall and yet lose its fat and have its organs deteriorate from improper nourishment.

It is not sufficient to watch the child's weight; it is necessary to study carefully the mother's nutrition and add to her nourishment and to her periods of rest as seem indicated.

If the child must be artificially fed, it is necessary for it to have protein, sugar, fat and lime, besides various other salts that are found in mother's milk.

It has been shown by long-continued research at the Wisconsin Agricultural Experiment Station that different kinds of food given to animals for years do not alter the nutritive status much, provided the foods are sufficient. In other words, the animal and the human being can use almost any kind of fat and almost any kind of protein for its recuperative and constructive processes. It makes little difference of what molecular construction the fat or protein is. It is broken down and resynthetized into what is needed for the particular structure. This subject is being carefully studied in laboratories, and scientific findings will doubtless before long be presented.

The laboratory that has recently furnished data concerning the breaking down and building up of food structures is that at Halle, Germany. Professor Abderhalden,[1] in this laboratory, has shown the ability of animal organisms to take dissociated nutrition elements as amino-acids, sugar, fatty acids, glycerol and inorganic salts and build them up or synthetize them into products necessary for nutrition and growth. In other words, the animal may take complex foods, break them down into the above-named elements, and build them up into what is required; or it may take the broken-down products and assimilate them into what nutritives are required.

The need of the body for sugar is recognized, and the course from sugar and starch ingestion can be traced through the stage of glucose absorption to the liver, where glucose is changed into glycogen and stored as such, to be again changed into glucose when leaving the liver by the blood, in which, in the lungs, changes seem to take place that cause some of the glucose to enter into

1. Abderhalden, E.: Fütterungsversuche mit vollständig abgebauten Nahrungsstoffen, Ztschr. f. physiol. Chem., 1912, lxxvii, 22; Synthetic Food and Artificial Nutrition, Editorial, THE JOURNAL A. M. A., May 4, 1912, p. 1378.

a combination with lecithin and to circulate with the lymph. It is then carried to the muscles where glycogen is again either analytically or synthetically formed and is utilized in producing muscular energy. The sugar metabolism is therefore fairly well understood.

Another necessary element of the food is fat, which is the most economical way of giving energy. The only question to decide is the amount that the child needs or can digest. Lime is another necessity. It and fat are essential to the production of soaps in the intestines. If there is too much fat or insufficient lime, fatty acids may be formed which irritate the intestines and may prevent normal saponification. Certain kinds of diarrhea may be due to these fatty acids and are cured if the fat is removed or the lime increased or the diet changed to carbohydrate, to buttermilk or to albumin.

Each child should be individualized and the food prescribed be made to fit the child, the same as a prescription is written to fit the individual patient. Stock proprietary mixtures are rarely advisable. The points to consider in individualizing the child are its age and its weight relatively to what the weight of a child the same age ought to be.

Dr. D. J. Levy[2] gives some valuable suggestions and advice which have been corroborated by his own experience. He offers as a rough working rule for the first six months of life to dilute the milk (not top milk) with an equal part of water and add 5 per cent. sugar. When the child is 6 to 9 months of age, two-thirds milk and one-third water are used with 5 per cent. of sugar; and from 9 months on undiluted milk is used. As to calories, he quotes Heubner and Rubner, that for the first three months 100 calories per kilogram (a little more than two pounds) of body-weight are needed; for the second three months, 99 calories per kilogram of body-weight; the third three months 80 calories per kilogram of body-weight; the fourth three months 70 calories per kilogram of body-weight. The caloric value of a quart of milk (liter) is approximately 600. Levy states that the new-born babe may be roughly estimated to weigh 3,000 gm., or 3 kg., and that each normal child should gain 500 gm. per month, or half a kilogram. A normal child at this rate should weigh at birth 3 kg.; at 3 months 4.5 kg.; at 6 months at least 6 kg. With the gradual increase in weight the food is gradually increased in quantity, and hence in caloric value.

The following represents the calories of food prepared as above suggested: One pint of milk equals 300 calories. Dilute this with a pint of water and add 5 per cent. of sugar, which equals 200 calories, and the mixture will represent 500 calories. As the child becomes older, take two-thirds quart of milk, which equals 400 calories, and dilute with one-third quart of water, with 5 per cent. of sugar added (representing 200 calories), making the total represent 600 calories. With these data the proper estimated nutriment can be arranged for each child.

Levy also urges that Czerny's advice to give longer feeding-intervals than generally allowed is valuable, even to five or six feedings in twenty-four hours. He also advises that the child should not be fed at night, but should be given all the water that it will drink at night, if it needs anything.

In the choice of sugars, Levy believes maltose dextrin is the best. Lactose may be used, but is not quite so satisfactory as it may cause dyspepsia or constipation. If it seems that the child needs more nutrition, and yet it is not thought best to give a milk of less dilution, 10 gm. (2½ ounces) of ordinary wheat flour may be added to the day's feeding, and Levy believes the weight will be increased, and often a constipation be cured. This flour diluent should be used after the third month only. If constipation persists, he thinks an oatmeal water (one-half to 2 ounces to a quart of water) may be used as a diluent instead of plain water. The bulk of the feeding, he thinks, should be less than a quart up to the fourth month, and no more than a quart from that time until the end of infancy; of course giving the child what extra water it requires.

Levy believes that after the sixth month one feeding a day of a simple broth of chicken, mutton or beef is advisable, and he suggests even a little stewed simple fruit, especially if the child is constipated. He finds that with these broths there is less demand of the infant for a large bulk of milk, and the child is better nourished and has better digestion.

He believes in simple instructions, and his first instructions to the nurse are to take a pint of milk and a pint of water, add 1½ ounces of maltose dextrin or milk-sugar, divide into five feedings, and give every four hours.

Dr. T. G. Allen[3] well discusses standards of infant-feeding. If a baby is uncomfortable and fretful immediately after feeding, the probability is that there is likely to be something wrong with the quantity of the food, that it is either too much or too little. If the discomfort occurs some time after a meal, other causes being eliminated, the trouble is probably with the quality of the food. A normal infant should fall asleep directly after eating. As not sufficiently recognized, a baby cries most frequently because the food is insufficient or not satisfactory, or because its digestion of it is at fault.

A normal baby will have a homogeneous, mustard-colored stool, of not unpleasant odor, of salve-like consistence, and free from admixture with curds or mucus; and as above stated, a healthy baby will gain weight pretty regularly on an average of an ounce a day during the first three months. From this time on the gain is not so rapid.

Allen believes that the child should have more protein in proportion to its weight than the adult, because it not only has to repair the tissue waste, but also must have protein with which to build. He has come to the conclusion, by careful studies, that the baby should have at least 4 per cent. of protein, represented by 2 or 3 ounces of mother's milk, or 1 to 1½ ounces of good cow's milk in each twenty-four hours. This he terms his "protein standard."

Heubner, as elsewhere referred to in this article, has shown that a normal baby requires 100 calories of energy for each kilogram (1,000 gm., about 2 pounds) of weight. This means that the baby should have 45 calories of energy for each pound of its weight, every twenty-four hours, which Allen says is roughly represented by a level tablespoon of milk-sugar, or 3 level teaspoons of cane-sugar, as the amount of energy required for each pound of baby. This ratio is much larger than the ratio required for an adult. A man of 150 pounds, at ordinary work, has been found to require 3,300 calories per day, while the 20-pound baby would require 900 calories. As Allen states, the greater amount required by the child is probably because of its growth, its greater metabolic activity and its proportionally greater amount of surface for heat radiation.

(To be continued)

2. Levy, D. J.: THE JOURNAL A. M. A., June 22, 1912, p. 1925.

3. Allen, T. G.: THE JOURNAL A. M. A., June 8, 1912, p. 1687.

MEDICAL COLLEGES OF THE UNITED STATES

ANNUAL PRESENTATION OF EDUCATIONAL DATA BY THE COUNCIL ON MEDICAL EDUCATION

Below are given brief descriptions of the medical colleges in the United States and Canada that are legally chartered to teach medicine, several of which do not grant degrees. The name, address, year of organization, history and date when first class graduated are given in each instance. Unless otherwise stated, a class graduated each subsequent year. Where official reports have been received from the college, information regarding faculty, entrance requirements, length of term, fees, students (excluding specials and postgraduates), graduates, name of dean and next session is given without discrimination, regardless as to whether the college is sectarian or not. In a few instances in which such reports were not received the information published is from other reliable sources. Figures for graduates include all who graduated since July 31, 1911. Extracts of rules and the membership of the Association of American Medical Colleges are shown following the list of colleges. Figures showing population of cities and states are taken from the United States Census Bureau's returns for 1910.

ALABAMA

Alabama, population 2,138,093, has two medical colleges, the Medical Department of the University of Alabama and the Birmingham Medical College, located, respectively, in Mobile and Birmingham. The population of Mobile is 51,521 and of Birmingham 132,685.

Birmingham

BIRMINGHAM MEDICAL COLLEGE, Avenue F and Twentieth Street.—Chartered in 1894. The first class graduated in 1895. There are 25 professors and 15 assistants, total 40. The course of instruction embraces four separate sessions of eight months each. The fees are $105 for each of the first three years and $130 for the fourth. The Secretary is Dr. E. P. Hogan. Registration, 1911-12, 183; graduates, 31. The nineteenth session begins Sept. 25, 1912, and ends May 16, 1913.

Mobile

UNIVERSITY OF ALABAMA SCHOOL OF MEDICINE, St. Anthony and Lawrence Streets.—Organized in 1859 as the Medical College of Alabama. Classes were graduated in 1861 and in all subsequent years except 1862 to 1868, inclusive. It was reorganized as the Medical Department of the University of Alabama in 1897. All property was transferred to the University of Alabama in 1907, when the present title was assumed. The faculty consists of 20 professors and 37 lecturers and assistants, a total of 57. The course of study covers four years of thirty-two weeks each. The total fees for each of the first three years are $135; for the fourth year, $160. The Dean is Dr. Eugene DuBose Bondurant. The total registration for 1911-12 was 137; graduates, 35. The forty-seventh session begins Sept. 23, 1912, and ends May 22, 1913.

ARKANSAS

Arkansas, population 1,574,449, has one medical college, the Medical Department of the University of Arkansas, located in Little Rock, a city of 45,941.

UNIVERSITY OF ARKANSAS MEDICAL DEPARTMENT, Second and Sherman Streets.—Organized in 1879 as the Medical Department of Arkansas Industrial University. It assumed the present title in 1899. In 1911 the College of Physicians and Surgeons united with it and the new school was made an integral part of the University of Arkansas. The first class graduated in 1880. The faculty consists of 25 professors and 23 lecturers and assistants, total, 48. The course of study covers four years of thirty-one weeks each. The fees are $125 for each of the first three years and $150 for the fourth year. The Dean is Dr. Morgan Smith. Total registration, 1911-12 was 145; graduates, 52. The thirty-fourth session begins Sept. 16, 1912, and ends May 9, 1913.

CALIFORNIA

California, population 2,337,459, has eight medical colleges. Four are located in San Francisco, a city of 416,912 inhabitants. They are Leland Stanford Junior University College of Medicine, Medical Department of the University of California, Hahnemann Medical College of the Pacific and the College of Physicians and Surgeons. The College of Physicians and Surgeons and the California Eclectic Medical College and the Los Angeles Clinical Department of the University of California are situated in Los Angeles, population 319,198. The Oakland College of Medicine and Surgery is in Oakland, population 150,174. The College of Medical Evangelists is located at Loma Linda, a village of 110 people.

Loma Linda

COLLEGE OF MEDICAL EVANGELISTS.—Organized in 1909. The faculty numbers 10. The course extends over five years of nine months each, but includes a study of the Bible, pastoral training and other non-medical subjects. The total fees each year are $101; matriculation fee, $5, payable but once; graduation fee, $10. The Dean is DR. GEORGE KNAPP ABBOTT. The total registration for 1911-12 was 56; no graduates. The fourth session begins Sept. 26, 1912, and ends June 25, 1913.

Los Angeles

COLLEGE OF PHYSICIANS AND SURGEONS, 516 East Washington Street.—Organized in 1903, first class graduated in 1905; became Medical Department, University of Southern California August 11, 1909. The course covers four years of nine months each. The faculty consists of 15 professors and 44 associate professors, lecturers and instructors, a total of 59. The fees for the four years respectively are $160, $157, $155 and $182. The Dean is Charles W. Bryson, Delta Building, Los Angeles. The registration for 1911-12 was 126; graduates, 24. The next session begins Sept. 9, 1912, and ends June 12, 1913.

CALIFORNIA ECLECTIC MEDICAL COLLEGE, 846 Lyon Street.—Organized in 1879 at Oakland as the California Medical College. Removed to San Francisco in 1887. Suspended in 1906. Reorganized at Los Angeles with the present title in 1907. Classes were graduated in 1880, and in all subsequent years except 1907. It has a faculty of 30. The Dean is Dr. J. A. Munk. The registration for 1911-12 was 28; graduates, 4. The thirty-fourth session begins September 16, 1912, and ends May 22, 1913.

Oakland

OAKLAND COLLEGE OF MEDICINE AND SURGERY, Thirty-First and Grove Streets.—Organized in 1909, opened in 1902. The first class graduated in 1906. The faculty numbers 34. The course covers five years of nine months each, and the classes are limited to ten students each. The total fees for each of the five years respectively are $210, $200, $175, $175 and $175. The Registrar is Dr. Edward N. Ewer. The total registration for 1911-12 was 22; graduates, 6. The eleventh session begins Aug. 12, 1912, and ends May 17, 1913.

San Francisco

HAHNEMANN MEDICAL COLLEGE OF THE PACIFIC. Homeopathic. Sacramento and Maple Streets.—Organized in 1881 as the Hahnemann Medical College. The first class graduated in 1884. In 1888 it became the Hahnemann Hospital College of San Francisco. It assumed the present name in 1902. It has a faculty of 12 professors and 23 lecturers, instructors, etc., a total of 35. The course covers four years of thirty-four weeks each. Total fees for the first year are $155, and $100 for each of the other three. The Dean is Dr. James W. Ward, 391 Sutter Street. The total registration for 1911-12 was 35; graduates, 5. The thirty-first session begins Aug. 1, 1912, and ends April 20, 1913.

COLLEGE OF PHYSICIANS AND SURGEONS, 344 Fourteenth Street.—Organized in 1896. The first class graduated in 1897. The faculty numbers 39. The course covers four years of nine months each. The fees for each of the four years respectively are $165, $160, $160 and $185. The Dean is Dr. Ethan H. Smith. Registration for 1911-12 was 16; graduates, 3. The sixteenth session begins Sept. 4, 1912, and ends June 1, 1913.

San Francisco-Palo Alto

LELAND STANFORD JUNIOR UNIVERSITY, DEPARTMENT OF MEDICINE. University Campus, Palo Alto, and Sacramento and Webster Streets, San Francisco.—Organized in 1908 when, by an agreement, the interests of Cooper Medical College were taken over. By the terms of this agreement Cooper Medical College continued to teach until the classes which entered prior to August, 1909, had been graduated. The last class graduated in 1912. During the last session the work of the first, second and third years was given by Leland Stanford University Medical Department, but hereafter all four years will be conducted. The faculty consists of 27 professors and 24 lecturers, assistants, etc., a total of 51. Three years of collegiate work are required for admission. The course covers four years of nine months each. The total fees for each of the first and second years are $160, for the third and fourth years, $150 each. The Dean is Dr. R. L. Wilbur, San Francisco. The total registration for 1911-12 for the two colleges was 70; graduates (Cooper), 36. The next session begins Aug. 26, 1912, and ends May 14, 1913.

San Francisco-Berkeley-Los Angeles

UNIVERSITY OF CALIFORNIA MEDICAL DEPARTMENT. University Campus, Berkeley; Second and Parnassus Avenues, San Francisco, and Buena Vista and Alpine Streets, Los Angeles.—Organized in 1863 as the Toland Medical College. The first class graduated in 1865. In 1872 it became the medical Department of the University of California. In 1909 it absorbed the College of Medicine of the University of Southern California, which became a clinical department at Los Angeles. Two years of collegiate work are required for admission. The work of the first two years is given at Berkeley and the work of the last two years at both Los Angeles and San

Francisco. The faculty is composed of 58 professors and 75 associates and assistants, a total of 133. The course covers four years of nine months each. The fees are: Matriculation, $5; fees for the four years respectively are approximately, $200, $195, $190 and $165. The Dean at San Francisco is Dr. Herbert C. Moffitt, at Los Angeles, Dr. W. Jarvis Barlow. Total registration of the two schools for 1911-12 was 88; graduates, 27. The fortieth session at San Francisco begins Aug. 8, 1912, and ends May 10, 1913. The next session at Los Angeles begins Sept. 16, 1912, and ends June 20, 1913.

COLORADO

Colorado, with a population of 799,024, has one medical college, the University of Colorado, School of Medicine. The first two years of the course are given at Boulder, the seat of the university, while the last two, or clinical years, are given in Denver, which has a population of 213,381.

Boulder-Denver

UNIVERSITY OF COLORADO SCHOOL OF MEDICINE.—Organized in 1883. Classes were graduated in 1885 and in all subsequent years except 1898 and 1899. Denver and Gross College of Medicine was merged Jan. 1, 1911, when the legal right to teach the last two or clinical years in Denver was secured. The faculty embraces 60 professors and 13 lecturers and assistants, a total of 73. The work embraces a graded course of four years of nine months each. The entrance requirements are two years of college work counting toward a degree in arts in an accredited college or university. The tuition is $75 per year; there are no other fees. The Dean is Dr. William P. Harlow. The total registration for 1911-12 was 118; graduates, 39. The thirty-first session begins Sept. 9, 1912, and ends June 5, 1913.

CONNECTICUT

Connecticut, with a population of 1,114,756, has one medical college, located in New Haven, population 133,605.

New Haven

YALE MEDICAL SCHOOL, York and Chapel Streets.—This is the Department of Medicine of Yale University. In 1810 a charter was granted for the establishment of this school, and in 1813 it was organized as the Medical Institution of Yale College. The first class graduated in 1814. The faculty consists of 16 professors and 54 lecturers and assistants, a total of 70. The requirement for admission is two full years of collegiate work plus evidence of satisfactory preparation in physics, general inorganic chemistry and general biology. The course covers four years of nine months each. The fees for the four years respectively are approximately $220, $168, $150 and $163. The Dean is Dr. George Blumer. The total registration for 1911-12 was 63; graduates, 29. The 100th session begins Sept. 26, 1912, and ends June 18, 1913.

DISTRICT OF COLUMBIA

Washington, population 331,069, has three medical colleges; George Washington University Department of Medicine, Georgetown University School of Medicine and Howard University School of Medicine.

Washington

GEORGE WASHINGTON UNIVERSITY DEPARTMENT OF MEDICINE, 1325 H Street, N.-W.—Organized in 1825 as the National Medical College, Medical Department of Columbian College. Classes were graduated in 1826 and in all subsequent years, except 1834 to 1838, and 1861 to 1863, inclusive. The original title was changed to Medical Department of Columbian University in 1873. In 1904, by an act of Congress, it received its present title. The faculty is composed of 30 professors and 45 instructors, demonstrators and assistants, a total of 75. The course covers four years of thirty-two weeks each. The total fees are $150 per year. The Dean is Dr. William C. Borden. The total registration for 1911-12 was 92; graduates, 37. The ninety-first session begins Sept. 25, 1912, and ends June 11, 1913.

GEORGETOWN UNIVERSITY SCHOOL OF MEDICINE, 920 H Street, N.-W.—Organized in 1851. The first class graduated in 1852. The faculty contains 19 professors, 43 instructors and assistants; total 62. The course of study covers four terms of eight and one-half months each. The fees for the first year are $165, and for each of the other three years, $150. The Dean is Dr. George M. Kober. The registration for 1911-12 was 155; graduates, 23. The sixty-second session begins Sept. 27, 1912, and ends June 13, 1913.

HOWARD UNIVERSITY SCHOOL OF MEDICINE, Fifth and W Streets, N.-W.—Chartered in 1867. Organized in 1869. The first class graduated in 1871. Colored students compose a majority of those in attendance. The faculty comprises 14 professors and 28 lecturers and assistants, 42 in all. The admission requirements are one year of collegiate work including physics, chemistry, botany and zoology and a reading knowledge of one modern language besides English. The course covers four years of thirty weeks each. The fees of each of the four sessions respectively are $107, $102, $102 and $109. The Dean is Dr. Edward A. Balloch. Registration for 1911-12 was 170; graduates, 36. The forty-fifth session begins Sept. 25, 1912, and ends June 4, 1913.

GEORGIA

Georgia, population 2,609,121, has five medical colleges; Medical College of Georgia, located in Augusta, population 41,040; Atlanta College of Physicians and Surgeons, Atlanta School of Medicine, the Georgia College of Eclectic Medicine and Surgery, and the Southern College of Medicine and Surgery are in Atlanta, a city of 154,839 population.

Atlanta

ATLANTA COLLEGE OF PHYSICIANS AND SURGEONS, Butler and Armstrong Streets.—Organized in 1898 by union of the Atlanta Medical College, organized in 1855, and Southern Medical College, organized in 1878. The first class graduated in 1899. It has a faculty of 23 professors and 32 assistants, a total of 55. The course of study covers four years of thirty weeks each. Fees: $125 each year. The Dean is Dr. W. S. Elkin, 29 Luckie Street. Total registration of students for 1911-12 was 372; graduates, 61. The fifteenth session begins Sept. 18, 1912, and ends May 7, 1913.

ATLANTA SCHOOL OF MEDICINE, Luckie, Barton and Cain Streets.—Organized in September, 1905. The first class graduated in 1906. The course covers four years of seven months each. It has a faculty of 14 professors and 28 lecturers and assistants, a total of 42. The fees each year are $105; graduation fee, $30. The Dean is Dr. George H. Noble. The total registration for 1911-12 was 233; graduates, 45. The seventh session begins Sept. 20, 1912, and ends May 1, 1913.

GEORGIA COLLEGE OF ECLECTIC MEDICINE AND SURGERY, Tanner Street, near Edgewood Avenue.—Organized in 1877 as the Georgia Eclectic Medical College. In 1884 it acquired the charter of the College of American Medicine and Surgery. It assumed its present name in 1886. The first class graduated in 1878. The faculty consists of 13 professors and 6 assistants, a total of 19. Tuition is $80 per year; graduation fee, $25. The Proctor is Dr. E. B. Thomas. Total registration for 1911-12 was 70; graduates, 39. The next session begins Sept. 20, 1912, and ends April 13, 1913.

SOUTHERN COLLEGE OF MEDICINE AND SURGERY, McDaniel Street.—Organized in 1911. The faculty numbers 13. Total registration for 1911-12 was 20; graduates, 11. The Dean is Dr. E. O. Stuckey. *Reported not in good standing by the Georgia Board of Medical Examiners.*

Augusta

UNIVERSITY OF GEORGIA, COLLEGE OF MEDICINE, Sixth and Telfair Streets.—Organized in 1828 as the Medical Academy of Georgia, the name being changed to the Medical College of Georgia in 1829. Since 1873 it has been known as the Medical Department of the University of Georgia. Entire property transferred to the University in 1911. Classes were graduated in 1833 and in all subsequent years, except 1862 and 1863. The faculty includes 23 professors and 34 assistants, 57 in all. The course is four years of eight months each. Fees for each of the four years are $100; graduation fee, $25. The Dean is Dr. W. H. Doughty, Jr. The total registration for 1911-12 was 126; graduates, 38. The nineteenth session begins Sept. 18, 1912, and ends May 20, 1913.

ILLINOIS

Illinois, population 5,638,591, has eight medical colleges, one of which is a night school, all located in Chicago, a city of 2,185,283 inhabitants, and are as follows: Rush Medical College, Northwestern University Medical School, University of Illinois College of Medicine, Hahnemann Medical College, Bennett Medical College, Hering Medical College, Jenner Medical College and Chicago College of Medicine and Surgery.

Chicago

RUSH MEDICAL COLLEGE.—This school was founded in 1837, organized in 1843, was the medical department of Lake Forest University from 1887 until 1898, when it became affiliated with the University of Chicago. The first class graduated in 1844. The faculty is composed of 97 professors, 149 associates, instructors, etc., a total of 246. The requirements for admission are two years of college work, including courses in college chemistry, physics and biology, and a reading knowledge of German or French. The course covers four years of eight and a half months each. An optional fifth year, consisting of a hospital internship or of a fellowship in one of the departments, is offered. All freshmen and sophomore studies are given at the University of Chicago. The last two years are given in the clinical building at the corner of Wood and Harrison Streets. The total fees are $180 each year. A matriculation fee of $5 is paid but once, and there are incidentals amounting from $2 to $5 annually. The Dean is Dr. John M. Dodson. Total registration 1911-12 was 559; graduates, 112. The seventieth session begins Oct. 1, 1912, and ends June 14, 1913.

NORTHWESTERN UNIVERSITY MEDICAL SCHOOL, Dearborn Street, between Twenty-Fourth and Twenty-Fifth Streets.—Organized in 1859 as the Medical Department of Lind University. In 1864 it became independent as the Chicago Medical College. It united with Northwestern University in 1869, but retained the name of Chicago Medical College until 1891, when the present name was taken. The faculty comprises 56 professors and 91 lecturers and assistants, a total of 147. The requirements for admission are such as will admit to the College of Liberal Arts of Northwestern University plus two years of college work including courses in physics, chemistry, biology and modern languages. The course covers four years of eight months each. The fees for the four years respectively are $200, $200, $191 and $185. The Dean is Dr. Arthur R. Edwards. The total registration for 1911-12 was 259; graduates, 80. The fifty-third session begins Oct. 1, 1912, and ends June 11, 1913.

COLLEGE OF PHYSICIANS AND SURGEONS, Honore and Congress Streets.—Organized in 1882 as the College of Physicians and Surgeons. The first class graduated in 1883. It became the Medical Department of the University of Illinois by affiliation in 1896 and an integral part in 1910, when it took the name of University of Illinois College of Medicine. The relationship with the university was canceled in 1912 and the former name was resumed. The American Medical Missionary College was absorbed in 1910. The faculty is composed of 44 professors, 84 assistants and instructors, a total of 128. The fees are $155 each for the first two years, $150 for the third, and $160 for the fourth year. The Dean is Dr. William E. Quine. Total registration for 1911-12 was 506; graduates, 145. The thirty-first session begins Oct. 1, 1912, and ends June 6, 1913.

CHICAGO COLLEGE OF MEDICINE AND SURGERY, 706 South Lincoln Street.—Organized in 1901 as the American College of Medicine and Surgery (Chicago Eclectic Medical College). The latter part

of the name was dropped in 1902 and it became the Medical Department of Valparaiso University. Eclecticism was dropped in 1905. The name was changed to the above in 1907. The course covers four years of eight months each. The faculty consists of 41 professors and 83 lecturers and assistants, a total of 124. The total fees of each of the four years, respectively, are $120, $120, $105 and $120. The Registrar is Dr. G. E. Wyneken. The total registration for 1911-12 was 556; graduates, 126. The twelfth session begins Sept. 24, 1912, and ends May 19, 1913.

HAHNEMANN MEDICAL COLLEGE AND HOSPITAL OF CHICAGO, 2811 Cottage Grove Avenue.—Organized in 1859. The first class was graduated in 1861. The faculty includes 31 professors and 45 lecturers, assistants, etc., a total of 76. The course extends over four years of eight months each. The tuition fees for the four years respectively are $125, $125, $155 and $175. The Registrar is Dr. W. Henry Wilson. The total registration for 1911-12 was 104; graduates, 33. The fifty-third session begins Sept. 25, 1912, and ends May 23, 1913.

HERING MEDICAL COLLEGE. Homeopathic. 703 South Wood Street.—Organized in 1892. The first class graduated in 1893. The faculty consists of 28 professors and 25 assistants, instructors, etc., a total of 53. The tuition fees for each of the four years respectively are $115, $105, $110 and $100. The Registrar is Dr. E. B. Beckwith. The total registration for 1911-12 was 28; graduates, 7. The next session begins Sept. 24, 1912, and ends June 5, 1913. *Reported not in good standing by the Illinois State Board of Health.*

BENNETT MEDICAL COLLEGE, Fulton and Ada Streets, Medical Department of Loyola University.—Organized in 1868 as the Bennett College of Eclectic Medicine and Surgery. Dropped Eclecticism in 1909. In 1910 it united with the Illinois Medical College and became by affiliation the Medical Department of Loyola University. The first class graduated in 1870. The faculty numbers 93. The course covers four years of thirty-four weeks each. The fees for the four years respectively are $135, $130, $125 and $130. The Dean is Dr. William F. Waugh. The total registration for the two colleges in 1911-12 was 402; graduates, 93. The next session begins Oct. 1, 1912, and ends June 13, 1913.

JENNER MEDICAL COLLEGE, an afternoon and night school, located at 223 West Washington Street.—Organized in 1892. Classes were graduated in 1896 and in all subsequent years. The faculty numbers 48. The Secretary is Dr. John D. MacKellar. Total registration for 1911-12 was 138; graduates, 12. The next session begins Sept. 3, 1912, and ends June 14, 1913.

INDIANA

Indiana, population 2,700,876, has one medical college, the Indiana University School of Medicine, located at Indianapolis, a city of 233,650 people, except that the work of the first year is offered also at Bloomington, the seat of the University.

Bloomington and Indianapolis

INDIANA UNIVERSITY SCHOOL OF MEDICINE.—Organized in 1893, medical course until 1905. In 1907, by union with the State College of Physicians and Surgeons, the complete course in medicine was offered. In 1908 the Indiana Medical College, which was formed in 1907 by the merger of the Medical College of Indiana (organized in 1869) and the Fort Wayne College of Medicine (organized in 1879) merged into it. The faculty consists of 93 professors and 80 lecturers, associates and assistants, a total of 173. Two years of collegiate work are required for admission. The work of the first year is emphasized only at Bloomington. The work of the other three years is all at Indianapolis. A fifth optional year leading to the "M.D. *cum laude*" has been added. The Secretary at Bloomington is Dr. B. D. Myers; the Dean is Dr. Charles P. Emerson, Indianapolis. The total registration for 1911-12 was 155; graduates 45. The next session begins Sept. 24, 1912, and ends June 8, 1913.

IOWA

Iowa, population 2,224,771, has two medical colleges. The College of Medicine of the State University of Iowa, located in Iowa City, population 10,091. In Des Moines, population 86,368, is the College of Medicine of Drake University.

Des Moines

DRAKE UNIVERSITY COLLEGE OF MEDICINE.—First two years given on the University Campus, University Avenue, between Twenty-Fifth and Twenty-Eighth Streets, the clinical years at Fourth and Center Streets. Organized in 1881 as the Iowa Eclectic Medical College. In 1883, the name was changed to the Iowa Medical College, Eclectic. In 1887 it resumed its former name, merged into the Iowa College of Physicians and Surgeons and became the Medical Department of Drake University. In 1903 it took its present title. The first class graduated in 1882. The faculty consists of 20 professors and 33 assistants, lecturers, etc., a total of 53. Two years of collegiate work, including courses in physics, chemistry and biology, are required for admission. The work covers four years of nine months each. The total fees are $165 each year. The Dean is Dr. William Wilson Pearson. The total registration for 1911-12 was 50; graduates, 16. The thirtieth session begins Sept. 18, 1912, and ends June 11, 1913.

Iowa City

STATE UNIVERSITY OF IOWA COLLEGE OF MEDICINE. University Campus.—Organized in 1869. First session began in 1870. First class graduated in 1871. The faculty is made up of 21 professors, 22 lecturers, demonstrators and assistants, a total of 43. Two years of collegiate work, including courses in physics, chemistry and biology, are required for admission. The course of study covers four years of thirty-six weeks each. Total fees for each year are $50 plus a matriculation fee of $10 paid but once and a graduation fee of $10. The Dean is Dr. James R. Guthrie, Dubuque. Total number of students registered for 1911-12 was 110; graduates, 34. The forty-third session begins Sept. 10, 1912, and ends June 13, 1913

KANSAS

Population 1,690,949, has two medical colleges. Kansas Medical College is in Topeka, population 43,684. The School of Medicine of the University of Kansas gives its first two years in Lawrence, population 12,915, and the last two years in Rosedale, a suburb of the two Kansas Cities, which together have a population of 330,662.

Lawrence and Rosedale

UNIVERSITY OF KANSAS SCHOOL OF MEDICINE.—Organized in 1880. In 1905 it merged with the Kansas City (Mo.) Medical College, founded in 1869, the College of Physicians and Surgeons, founded in 1894, and the Medico-Chirurgical College, founded in 1897. The faculty, including lecturers and clinical assistants, numbers 56. The requirements for admission are two years of collegiate work. The course covers four years of nine months each. The total fees are, for the first two years, $60 per year (and for non-residents of the state, $80); for the last two years $100 and $110, respectively. The Dean is Dr. S. J. Crumbine, Topeka; Associate Dean, Dr. M. T. Sudler. The total registration for 1911-12 was 75; graduates, 14. The thirty-third session begins Sept. 18, 1912, and ends June 11, 1913.

Topeka

KANSAS MEDICAL COLLEGE, 521 Quincy Street.—Organized in 1890. The first class graduated in 1892. It has been the Medical Department of Washburn College since 1903. It has a faculty of 32 professors and 9 lecturers and assistants, a total of 41. One year of collegiate work is required for admission. The course covers four years of nine months each. Fees, $100 yearly. Matriculation fee of $5 paid but once. The Dean is Dr. William E. McVey. Total registration for 1911-12 was 37; graduates, 9. The twenty-third session begins Sept. 11, 1912, and ends June 5, 1913.

KENTUCKY

Kentucky, population 2,289,905, has one medical college, the University of Louisville Medical Department, situated in Louisville, a city of 223,928 inhabitants.

Louisville

UNIVERSITY OF LOUISVILLE MEDICAL DEPARTMENT, Eighth and Chestnut Streets.—Organized in 1837 as the Louisville Medical Institute. The first class graduated in 1838, and a class graduated in each subsequent year except 1863. In 1846 the present name was assumed. In 1907 it absorbed the Kentucky University Medical Department. In 1908 it absorbed the Louisville Medical College, the hospital College of Medicine and the Kentucky School of Medicine. It has a faculty of 35 professors and 38 lecturers and assistants, a total of 73. The course covers four years of thirty-two weeks each. The fees are $135 each year; graduation fee, $25. The Dean is Dr. W. Edward Grant. The total registration for 1911-12 was 353; graduates, 119. The next session begins Oct. 1, 1912, and ends May 30, 1913.

LOUISIANA

Louisiana, having a population of 1,656,388, contains one medical college, the Medical Department of the Tulane University of Louisiana, situated in New Orleans, a city of 339,075.

New Orleans

MEDICAL DEPARTMENT OF THE TULANE UNIVERSITY OF LOUISIANA. University Campus and 1551 Canal Street.—Organized in 1834 as the Medical College of Louisiana. Classes were graduated in 1835 and in all subsequent years, except 1863-65, inclusive. It was transferred to Medical Department of the University of Louisiana in 1847 and became the Medical Department of the Tulane University in 1884. The faculty numbers 96. The course covers four years of thirty-two weeks each. One year of collegiate work is required for admission. Total fees are $180 per year; graduation fee, $30. The Dean is Dr. Isadore Dyer. The total registration for 1911-12 was 321; graduates, 104. The seventy-ninth session begins Sept. 30, 1912, and ends June 4, 1913.

MAINE

Maine, population 742,371, has one medical college, located in Brunswick and Portland, the latter having a population of 58,571.

Brunswick-Portland

MEDICAL SCHOOL OF MAINE. The medical department of Bowdoin College. The first two years are given at Bowdoin College, Brunswick, the last two at Portland, building located on Chadwick Street.—Organized in 1820. The first class graduated in 1820. The faculty numbers 60. The course covers four years of eight months each. The total fees are $120 for the first year and $110 for each of the other three years. The Dean is Dr. Addison S. Thayer, 10 Deering Street, Portland. The total number of students in 1911-12 was 83; graduates, 11. The ninety-second session begins Oct. 17, 1912, and ends June 25, 1913.

MARYLAND

Maryland, with a population of 1,295,346, contains five medical colleges, all located in Baltimore, a city with 558,485 inhabitants. They are as follows: Johns Hopkins University Medical Department, School of Medicine of the University of Maryland, College of Physicians and Surgeons, Baltimore Medical College and Maryland Medical College.

Baltimore

JOHNS HOPKINS UNIVERSITY MEDICAL DEPARTMENT, Washington and Monument Streets.—Organized in 1893. The first class graduated in 1897. The faculty consists of 39 professors and 79 clinical professors, etc., a total of 118. The requirements for admission demand that the applicant either has (a) completed the chemical-biologic course which leads to the A.B. degree in the university or (b) graduated at an approved college or scientific school and has a knowledge of French and German, physics, chemistry and biology, such as may be obtained from a year's course. The course extends over four years of eight and one-half months each. The charge for tuition is $200 per annum. The Dean is Dr. J. Whitridge Williams. Total registration for 1911-12 was 357; graduates, 85. The twentieth session begins Oct. 1, 1912, and ends June 10, 1913.

COLLEGE OF PHYSICIANS AND SURGEONS, Calvert and Saratoga Streets.—Organized in 1872. The first class graduated in 1873. In 1878 it united with Washington University School of Medicine. The faculty numbers 66. The work covers four years of eight months each. Total fees are $165 for each of the first three years and $195 for the fourth year. The Dean is Dr. William F. Lockwood. The total number of students registered in 1911-12 was 321; graduates, 63. The forty-first session begins Oct. 1, 1912, and ends June 5, 1913.

UNIVERSITY OF MARYLAND SCHOOL OF MEDICINE, Lombard and Greene Streets.—Organized in 1807 as the College of Medicine of Maryland. The first class graduated in 1810. In 1812 it became the University of Maryland School of Medicine. The faculty numbers 62. The course covers four years of eight months each. The total fees are $155 each year; graduation fee, $30. The Dean is Dr. R. Dorsey Coale. The total number of students registered in 1911-12 was 319; graduates, 75. The 106th session begins Oct. 1, 1912, and ends June 1, 1913.

BALTIMORE MEDICAL COLLEGE, Madison Street and Linden Avenue.—Organized in 1881. The first class graduated in 1882. The faculty numbers 77. The course covers four years of eight months each. Total fees for the first three years are $150 per year; for the fourth year, $180. The Dean is Dr. David Streett. The total number of students registered in 1911-12 was 199; graduates, 28. The thirty-first session begins Sept. 20, 1912, and ends June 1, 1913.

MARYLAND MEDICAL COLLEGE, 1114 West Baltimore Street.—Organized in 1898. The first class graduated in 1899. The faculty numbers 39. The course covers four years of eight months each. Total fees for the four years, respectively, are $111, $111, $105 and $135. The Dean is Dr. W. S. Smith. The total registration for 1911-12 was 182; graduates, 82. The next session begins Oct. 1, 1912, and ends June 1, 1913.

MASSACHUSETTS

Massachusetts, population 3,366,416, has four medical colleges: Medical School of Harvard University, Boston University School of Medicine, College of Physicians and Surgeons and Tufts College Medical School. They are all situated in Boston, a city of 670,585.

Boston

MEDICAL SCHOOL OF HARVARD UNIVERSITY, Longwood Ave.—Organized in 1782. The first class graduated in 1788. It has a faculty of 49 professors and 144 associates, assistants, etc., a total of 193. Candidates for admission "must present a degree in arts, literature, philosophy or science from a recognized college or scientific school, with the exception of such persons as may be admitted by special vote of the faculty." The session is four years of nine months each. The total fees for each of the first two years respectively are $234 and $208; for each of the last two years, $200. The Dean is Dr. Edward H. Bradford. The total registration for 1911-12 was 258; graduates, 61. The 131st session begins Sept. 23, 1912, and ends June 19, 1913.

BOSTON UNIVERSITY SCHOOL OF MEDICINE, 80 East Concord Street.—Organized in 1873. In 1874 the New England Female Medical College, founded in 1848, was merged into it. The first class graduated in 1874. The faculty includes 25 professors, 49 associates, etc., a total of 74. The course covers four years of eight months each. Total fees for the first, second and third years, $127 each, and for the last year $155. The Dean is Dr. John P. Sutherland, 295 Commonwealth Avenue. Total registration for 1911-12 was 94; graduates, 18. The fortieth session begins Oct. 3, 1912, and ends June 4, 1913.

TUFTS COLLEGE MEDICAL SCHOOL, 416 Huntington Avenue.—Organized in 1893 as the Medical Department of Tufts College. The first class graduated in 1894. It has a faculty of 32 professors and 85 assistants, lecturers, etc., a total of 117. The course covers four years of eight months each. The total fees are $155 each year. The Secretary is Dr. Frederic M. Briggs, 416 Huntington Avenue. Total registration for 1911-12 was 329; graduates, 91. The nineteenth session begins Sept. 25, 1912, and ends June 1, 1913.

COLLEGE OF PHYSICIANS AND SURGEONS, 517 Shawmut Avenue.—Organized in 1880. The first class graduated in 1882. The college announcement gives the names of 226 "matriculants and applicants" for the session of 1910-11, which included both dental and medical students. The names of some of the students who graduated in 1910 appear in the announcements of this school from six to nine years. The Dean is DR. THOMAS D. CROTHERS. Total registration for 1911-12 was 89; graduates, 20. The next session begins Sept. 18, 1912, and ends June 11, 1913. *The college is not recognized by the Massachusetts Medical Society.*

MICHIGAN

Michigan, population 2,810,173, has three medical colleges. Two of these, the University of Michigan Department of Medicine and Surgery and the Homeopathic College of the University of Michigan, are located at Ann Arbor, a city of 14,817 people. The Detroit College of Medicine is located at Detroit, a city of 465,766 inhabitants.

Ann Arbor

UNIVERSITY OF MICHIGAN DEPARTMENT OF MEDICINE AND SURGERY.—Organized in 1850. The first class graduated in 1851. It has a faculty composed of 18 professors and 66 associates, instructors, etc., a total of 84. The entrance requirements are two years of college work, including courses in chemistry, physics and biology, with laboratory work, and a reading knowledge of one modern language. The curriculum embraces four years of nine months each. The total fees for Michigan students for the entire course of four years is $250 and for others about $400. The Dean is Dr. Victor C. Vaughan. The total registration for 1911-12 was 242; graduates, 82. The sixty-third session begins Oct. 1, 1912, and ends June 26, 1913.

UNIVERSITY OF MICHIGAN HOMEOPATHIC COLLEGE.—Organized in 1875. The first class graduated in 1877. Although the work of the first two years is taken in the same classes with the Department of Medicine and Surgery of the University of Michigan, nevertheless the entrance requirements have been kept at only a high-school education, a difference of two years' collegiate work! The difference will continue to be one year's work since it is announced that hereafter one year of collegiate work will be required for admission. The Dean is Dr. W. B. Hinsdale. The total registration for 1911-12 was 91; graduates, 24. The next session begins Oct. 1, 1912, and ends June 26, 1913.

Detroit

DETROIT COLLEGE OF MEDICINE, St. Antoine, Catherine and Mullett Streets and Gratiot Avenue.—Organized in 1885 by consolidation of Detroit Medical College, organized in 1868, and the Michigan College of Medicine, organized in 1880. The first class graduated in 1886. The faculty embraces 22 professors, 102 lecturers, instructors, etc., a total of 124. The course covers four years of eight months each. The Registrar is Dr. F. B. Walker. The total registration for 1911-12 was 172; graduates, 38. The twenty-eighth session begins Sept. 10, 1912, and ends May 29, 1913.

MINNESOTA

Minnesota, population 2,075,708, contains one medical college, the College of Medicine and Surgery of the University of Minnesota, situated in Minneapolis. Minneapolis and St. Paul are practically one city, and have a combined population of 516,162.

Minneapolis

UNIVERSITY OF MINNESOTA COLLEGE OF MEDICINE AND SURGERY.—Organized in 1883; reorganized in 1888 by absorption of St. Paul Medical College and Minnesota Hospital Medical College. The first class graduated in 1889. In 1908 the Minneapolis College of Physicians and Surgeons, organized in 1883, was merged. In 1909 the Homeopathic College of Medicine and Surgery was merged. The faculty includes 67 professors and clinical professors and 90 associate professors, assistants, etc., a total of 157. The curriculum covers five years of nine months each, including a year's internship in a hospital. The entrance requirements are two years of university work which must include one year each of physics, general chemistry, qualitative analysis, zoology or botany, and German or French, all in addition to a four-year high-school course, including two years of Latin. Students entering hereafter will be required to secure a degree of B.S., or A.B. before the M.D. is granted. Total fees for the first and second years are $150 each, and for the third and fourth years $100 each; microscopic rental, $1 to $4 per annum. The Dean is Dr. F. F. Wesbrook. The total registration for 1911-12 was 183; graduates, 37. The twenty-fifth session begins Sept. 20, 1912, and ends June 14, 1913.

MISSISSIPPI

Mississippi, population 1,797,114, has one medical college, the Medical Department of the University of Mississippi, which gives only the first two years of the medical course. It is located at Oxford, a city of 1,825 inhabitants.

Oxford

UNIVERSITY OF MISSISSIPPI MEDICAL DEPARTMENT.—Organized in 1903. Gives only the first two years of the medical course. The session extends over eight and a half months. The faculty numbers 14. The Dean is Dr. W. S. Leathers. The total registration for 1911-12 was 44. The tenth session begins Sept. 19, 1912, and ends June 3, 1913.

MISSOURI

Missouri, population 3,293,335, has nine medical colleges. St. Louis, population 687,029, contains five of these, viz., the School of Medicine of St. Louis University, Washington University Medical Department, St. Louis College of Physicians and Surgeons and the American Medical College. Kansas City, which with Kansas City, Kan., has a total population of 330,662, has three colleges, namely: the University Medical College, the Kansas City Hahnemann Medical College and the Eclectic Medical University. Ensworth Medical College is located in St. Joseph, population 77,403. The Department of Medicine of the University of Missouri is at Columbia, a town of 9,662 people.

Columbia

UNIVERSITY OF MISSOURI SCHOOL OF MEDICINE.—Organized at St. Louis in 1845; was discontinued in 1859, but was reorganized at Columbia in 1872. Teaching of the clinical years was suspended in 1909. The faculty includes 11 professors and 5 assistant professors, lecturers, etc., a total of 16. The course covers two years of nine months each. The entrance requirements are two

years of college work, including English, 5 hours; German, 5 hours; general zoology, 5 hours; physics, 5 hours; inorganic chemistry, 5 hours; elective, 35 hours. Equivalent work in foreign language may be substituted for the English and German. Total fees are $70 each year. The Dean is Dr. C. M. Jackson. Total registration of students for 1911-12 was 36. The next session begins Sept. 19, 1912, and ends June 11, 1913.

Kansas City

UNIVERSITY MEDICAL COLLEGE, Corner Tenth and Campbell Streets.—Organized 1881 as University of Kansas City Medical Department. First class graduated 1882. Reorganized 1888 under present name. In 1911 it discontinued the courses of the first two years. The Dean is Dr. S. Grover Burnett. The total registration for 1911-12 was 70; graduates, 27. The next session begins Sept. 9, 1912, and ends June 9, 1913.

KANSAS CITY HAHNEMANN MEDICAL COLLEGE, 1020 East Tenth Street.—Organized in 1888 as the Kansas City Homeopathic Medical College. The first class graduated in 1899. In 1902 it united with the Hahnemann Medical College of the Kansas City University, taking the present title. The Dean is Dr. Moses T. Runnels. Total registration for 1911-12 was 41; graduates, 10. The next session begins Sept. 2, 1912, and ends May 12, 1913.

ECLECTIC MEDICAL UNIVERSITY, 1423 Independence Avenue.—Organized at Kansas City, Mo., in 1898 with the present title. Moved to Kansas City, Kan., in 1907, and took the name of Western Eclectic College of Medicine and Surgery. Returned to Kansas City, Mo., in 1909 and resumed the present title. First class graduated in 1900. Fees are $100 each year. The Secretary is Dr. D. R. Alexander. The total registration for 1911-12 was 50; graduates, 12. The fifteenth session begins Sept. 4, 1912, and ends May 19, 1913. *Reported not in good standing by the Missouri State Board of Health.*

St. Joseph

THE ENSWORTH MEDICAL COLLEGE, Seventh and Jule Streets.—Organized in 1876 as the St. Joseph Hospital Medical College. In 1882 it merged with the College of Physicians and Surgeons to form the St. Joseph Medical College. In 1888 changed name to Ensworth Medical College. In 1905 merged with the Central Medical College, organized in 1894, to form the Ensworth-Central Medical College. In 1907 the present title was resumed. The faculty numbers 34. The course covers four years of eight months each. The fees for the four years, respectively, are $90, $95, $75 and $95. The Secretary is Dr. T. E. Potter. Total registration for 1911-12 was 47; graduates, 5. The next session begins Sept. 20, 1912, and ends about May 20, 1913.

St. Louis

WASHINGTON UNIVERSITY MEDICAL SCHOOL, 1806 Locust Street.—Organized in 1842 as the Medical Department of St. Louis University. In 1855 it was chartered as an independent institution under the name of St. Louis Medical College. The first class graduated in 1843. In 1891 it became the Washington University Medical School. In 1899 it absorbed the Missouri Medical College. The faculty comprises 23 professors and 51 lecturers, instructors, etc., a total of 74. The course is four years of eight months each. The total fees for the four years are, respectively, $155, $150, $150 and $155. The Dean is Dr. Eugene L. Opie. The total registration for 1911-12 was 109; graduates, 44. The next session begins Sept. 30, 1912, and ends June 12, 1913.

ST. LOUIS UNIVERSITY SCHOOL OF MEDICINE, 1402 South Grand Avenue.—Organized in 1901 by union of Marion-Sims Medical College, organized in 1890, and Beaumont Hospital Medical College, organized in 1886. It became the Medical Department of St. Louis University in 1903. The faculty is composed of 45 professors, 64 lecturers and assistants, a total of 109. The curriculum covers four years of thirty-four weeks each. The total fees are $120 each year. The Dean is Dr. E. P. Lyon. The total registration for 1911-12 was 271; graduates, 70. The next session begins Oct. 1, 1912, and ends June 16, 1913.

ST. LOUIS COLLEGE OF PHYSICIANS AND SURGEONS, Jefferson Avenue and Gamble Street.—Organized in 1869. Classes graduated in 1870 and each subsequent year until 1873, when it suspended. It was reorganized in 1879. Classes graduated in 1880 and subsequent years. The fees for the four years are, respectively, $110, $105, $100 and $95. The Secretary is Dr. Walter U. Kennedy. Total registration for 1911-12 was 38; graduates, 11. The next session begins Sept. 15, 1912, and ends May 17, 1913.

AMERICAN MEDICAL COLLEGE, 407 South Jefferson Avenue.—Organized in 1873 as an Eclectic College. Eclecticism dropped in 1910. Absorbed the Barnes Medical College in 1911. Two classes were graduated each year from 1874 to 1883, inclusive. Since then one class has graduated each year. The course covers four years of eight and a half months each. The fees for the four years respectively are $130, $130, $110 and $130. The Dean is Dr. James Moores Ball. The total registration for 1911-12 was 172; graduates, 44. The next session begins Sept. 11, 1911, and ends June 2, 1912.

NEBRASKA

Nebraska, population 1,192,214, has three medical colleges. The University of Nebraska College of Medicine and the John A. Creighton Medical College at Omaha, population 124,096, and the Cotner Medical College at Lincoln, population 43,973.

Lincoln and Omaha

COLLEGE OF MEDICINE UNIVERSITY OF NEBRASKA, Eleventh and R Streets, Lincoln, and Twelfth and Pacific Streets, Omaha.—Organized in 1881 as the Omaha Medical College. The first class graduated in 1882. It became the Medical Department of Omaha University in 1891. In 1902 it affiliated with the University of Nebraska, with the present title. Two years of collegiate work are required for admission. The first two years are given at Lincoln; the last two at Omaha. The faculty is composed of 30 professors and 30 lecturers and instructors, total 60. The fees are approximately $100 per annum. Total registration for 1911-12 was 70; graduates 9. The next session at Omaha begins Sept. 10, 1912, and ends May 30, 1913. The next session at Lincoln begins Sept. 18, 1912, and ends June 7, 1913.

Bethany-Lincoln

COTNER MEDICAL COLLEGE, Eclectic. University Campus, Bethany, and corner 13th and P Streets, Lincoln. It is the Medical Department of Cotner University.—Organized in 1890 as the Lincoln Medical College. Assumed present title in 1911. The first class graduated in 1891. The Secretary is Dr. R. H. Spradling. The Registrar is Prof. R. L. Hoff, Bethany. The total registration for 1911-12 was 26; graduates, 7. The next session begins Sept. 16, 1912, and ends May 29, 1913.

Omaha

JOHN A. CREIGHTON MEDICAL COLLEGE, Fourteenth and Davenport Streets. It is the Medical Department of Creighton University.—Organized in 1892. The first class graduated in 1895. It has a faculty of 30 professors and 18 associates, lecturers and assistants, a total of 48. The course of study embraces four years of eight months each. The total fees for the four years, respectively, are $105, $100, $100 and $105. The Dean is Dr. D. C. Bryant, City National Bank Building. Total number of students registered in 1911-12 was 104; graduates, 51. The twenty-first session begins Sept. 1, 1912, and ends April 28, 1913.

NEW HAMPSHIRE

New Hampshire, population 443,140, has one medical college, located at Hanover, population 1,884.

Hanover

DARTMOUTH MEDICAL SCHOOL.—Organized as New Hampshire Medical Institute in 1797. The first class graduated in 1798. It is the Medical Department of Dartmouth College. The faculty is made up of 25 professors and 3 instructors, a total of 28. Two years of collegiate work are required for admission. The course covers four years of eight months each. The fees for the four years are, respectively, $145, $147, $125 and $125. The Dean is Dr. John M. Gile. The total registration for 1911-12 was 36; graduates, 9. The work of the first and second years begins with that of the academic department Sept. 19, 1912, and ends June 21, 1913; for the advanced classes the course begins Aug. 6, 1912, and ends April 22, 1913.

NEW YORK

New York State, population 9,113,614, has eleven medical colleges. Eight of these, College of Physicians and Surgeons (Columbia University), Long Island College Hospital, New York Homeopathic Medical College and Hospital, New York Medical College and Hospital for Women, Eclectic Medical College of the City of New York, Cornell University Medical College, the University and Bellevue Hospital Medical College, and Fordham University School of Medicine, are located in New York City, population 4,766,883. Albany Medical College is located in Albany, a city of 100,253 people. The University of Buffalo Medical Department is situated in Buffalo, population 423,715. The College of Medicine, Syracuse University, is in Syracuse, a city of 137,249 inhabitants.

Albany

ALBANY MEDICAL COLLEGE, Lancaster and Jay Streets.—Organized in 1838. The first class graduated in 1839. It became the Medical Department of Union University in 1873. The faculty is composed of 27 professors and 73 lecturers, assistants, etc., a total of 100. The curriculum covers four years of eight months each. Fees: First year, $130; second year, $145; third year, $120, and fourth year, $130. The Registrar is Dr. Willis G. Tucker. The total registration for 1911-12 was 223; graduates, 43. The eighty-second session begins Sept. 18, 1912, and ends May 13, 1913.

Buffalo

UNIVERSITY OF BUFFALO MEDICAL DEPARTMENT, High Street, near Main.—Organized in 1846. The first class graduated in 1874. It absorbed the Medical Department of Niagara University in 1898. The faculty is composed of 35 professors and 45 lecturers, assistants, etc., a total of 80. The course covers four years of eight months each. The total fees for the four years, respectively, are $185, $180, $140 and $140. The Dean is Dr. Herbert U. Williams. Total registration for 1911-12 was 228; graduates, 40. The sixty-seventh session begins Sept. 23, 1912, and ends May 30, 1913.

New York

COLUMBIA UNIVERSITY COLLEGE OF PHYSICIANS AND SURGEONS, 437 West Fifty-Ninth Street.—Organized in 1807 by the regents of the University of the State of New York as their medical department. The first class graduated in 1811. Affiliated with Columbia College in 1814 and was permanently connected in 1860, when it became the Medical Department of Columbia College. That institution became Columbia University in 1891. The faculty is composed of 82 professors and 137 instructors, demonstrators, etc., a total of 219. Two years of collegiate work, including courses in physics, chemistry and biology, are required for admission. The work covers four years of eight months each. The Dean is Dr. Samuel W. Lambert. The total fees for the first year are $255; for the second and third, $250, and $275 for the fourth year. Total registration for 1911-12 was 347; graduates, 86. The 105th session begins Sept. 25, 1912, and ends June 4, 1913.

CORNELL UNIVERSITY MEDICAL COLLEGE, First Avenue and Twenty-Eighth Street, New York City, and Ithaca.—Organized in 1898. The first class was graduated in 1899. The work of the first year may be taken either in Ithaca or New York. The faculty is composed of 51 professors and 102 assistants, lecturers, instructors, etc., a total of 153. All candidates for admission must be graduates of approved colleges or scientific schools and in addition must

have such knowledge of physics, inorganic chemistry and biology as may be obtained in college by a year's course in these subjects when accompanied by laboratory work. Fees: First year, $190; second and third, $185 each, and $200 for the fourth year. The Dean is Dr. William M. Polk. Total registration for 1911-12 was 85; graduates, 11. The fifteenth session begins Oct. 2, 1912, and ends June 12, 1913.

ECLECTIC MEDICAL COLLEGE OF THE CITY OF NEW YORK, 239 East Fourteenth Street.—Organized in 1865. The first class graduated in 1867. The faculty consists of 21 professors and 32 lecturers, assistants, etc., a total of 53. The course covers four years of eight months each. The Dean is Dr. Samuel A. Hardy. Total registration for 1911-12 was 45; graduates, 11. The next session begins Sept. 11, 1912, and ends May 14, 1913.

FORDHAM UNIVERSITY SCHOOL OF MEDICINE, Third and Pelham Avenues.—Organized in 1905. First class graduated in 1909. The faculty consists of 46 professors and 46 lecturers and assistants, a total of 92. The course of instruction covers four years of eight and a half months each. Fees, $200 each year. A year's work in a recognized college of liberal arts is required for admission. The Dean is Dr. James J. Walsh. The total registration for 1911-12 was 118; graduates, 24. The eighth session begins Sept. 27, 1912, and ends June 12, 1913.

LONG ISLAND COLLEGE HOSPITAL, Henry Street, near Atlantic Avenue, Brooklyn.—Organized in 1858. The first class graduated in 1860. It has a faculty of 9 professors and 86 assistants, instructors, etc., a total of 95. The course covers four years of eight months each. Fees: First year, $205; second year, $200; third, $180, and $200 for the fourth year. The Secretary is Dr. Joseph H. Raymon. Total registration, 1911-12 was 412; graduates, 72. The fifty-fifth session begins Sept. 28, 1911, and ends June 3, 1912.

NEW YORK HOMEOPATHIC MEDICAL COLLEGE AND FLOWER HOSPITAL, Eastern Boulevard, between Sixty-Third and Sixty-Fourth Streets.—Organized in 1858. Incorporated in 1860 as the Homeopathic Medical College for the State of New York. The present title was assumed in 1869. The first class graduated in 1861. The faculty consists of 43 professors and 42 assistants, lecturers, etc., a total of 85. The Dean is Dr. Royal S. Copeland. Total registration for 1911-12 was 170; graduates, 27. The fifty-third session begins Oct. 2, 1912, and ends May 28, 1913.

NEW YORK MEDICAL COLLEGE AND HOSPITAL FOR WOMEN, 17-19 West One Hundred and First Street.—Organized in 1863. The first class graduated in 1864. The faculty consists of 30 professors and 20 lecturers and assistants, a total of 50. The course covers four years of thirty weeks each. The fees for each of the four years, respectively, are $155, $150, $135 and $155. The Dean is Dr. Helen Cooley Palmer. The total registration for 1911-12 was 31; graduates, 2. Matriculants are not listed in the annual announcement. The fiftieth session begins Sept. 30, 1912, and ends May 24, 1913.

UNIVERSITY AND BELLEVUE HOSPITAL MEDICAL COLLEGE, First Avenue and Twenty-Sixth Street.—Organized in 1898 by the union of the New York University Medical College, organized in 1841, and the Bellevue Hospital Medical College, organized in 1861. It is the Medical Department of New York University. The faculty is composed of 39 professors and 140 instructors, etc., in all 179. The course covers four years of eight months each. The fees are $200 per year. The Dean is Dr. Egbert Le Fevre. Total registration for 1911-12 was 476; graduates, 80. The next session begins Oct. 1, 1912, and ends June 4, 1913.

Syracuse

SYRACUSE UNIVERSITY COLLEGE OF MEDICINE, 307-311 Orange Street.—Organized in 1872, when the Geneva Medical College was removed to Syracuse, under the title "The College of Physicians and Surgeons of Syracuse University." Present title assumed in 1875. The first class graduated in 1873 and a class graduated each subsequent year. In 1884 the amalgamation with the university was made complete. Two years of a recognized college course are required for admission. The course covers four years of thirty-two weeks each. The total fees for each of the four years are respectively, $191, $191, $151 and $166. The faculty is composed of 23 professors and 42 associate and assistant professors, lecturers and instructors. The Dean is Dr. John L. Heffron. The total enrolment for 1911-12 was 91; graduates, 33. The forty-first session begins Oct. 1, 1912, and ends June 11, 1913.

NORTH CAROLINA

North Carolina, population 2,206,287, has four medical schools, two of which give only the first two years of the medical course. The Medical Department of the University of North Carolina is located at Chapel Hill, population 1,200. The Leonard School of Medicine is at Raleigh, population 19,218. The North Carolina College is at Charlotte, population 34,014. Wake Forest School of Medicine is at Wake Forest, population 823.

Chapel Hill

UNIVERSITY OF NORTH CAROLINA MEDICAL DEPARTMENT.—Organized in 1890. Until 1902 this school gave only the work of the first two years, when the course was extended to four years by the establishment of a department at Raleigh. The first class graduated in 1903. A class was graduated each subsequent year, including 1910, when the clinical department at Raleigh was discontinued. The faculty is composed of 13 professors and 14 lecturers, assistants, etc., a total of 27. The total fees for the two years, respectively, are $115 and $116. The Dean is Dr. I. H. Manning. The total registration for 1911-12 was 54. The twenty-seventh session begins Sept. 9, 1912, and ends June 3, 1913.

Charlotte

NORTH CAROLINA MEDICAL COLLEGE, Church and Sixth Streets.—Organized in 1887 at Davidson as the Davidson School of Medicine. It was a preparatory school only, not granting any degrees until 1903, when it was chartered under its present name. The first class was graduated in 1893. Removed to Charlotte in 1907. The faculty numbers 45. The course covers four years of about eight months each. The fees for the four years are, respectively, $107, $102, $100 and $130. The Dean is Dr. Walter O. Nisbet. The total registration for 1911-12 was 100, graduates, 24. The next session begins Sept. 11, 1912, and ends May 5, 1913.

Raleigh

LEONARD MEDICAL SCHOOL.—Colored. This department of Shaw University was established in 1882. Classes were graduated in 1886, 1888 and in all subsequent years. It has a faculty of 14. The course covers four years of thirty weeks each. The total fees for each year are $57; graduation fee, $10. The Dean is Dr. William Moncure. Total registration for 1911-12, was 121, graduates, 30. The thirty-first session begins Oct. 2, 1912, and ends May 15, 1913.

Wake Forest

WAKE FOREST COLLEGE SCHOOL OF MEDICINE.—This school was organized in 1902. The faculty, including the professors of chemistry, physics, and biology, numbers 9 exclusive of laboratory assistants. Only the first two years of the medical course are offered after the completion of freshmen and sophomore college work, and upon this combined course the B.S. degree is conferred. Each annual course extends over nine months. The fees for each year aggregate $102.50. The President is William Louis Poteat. The total registration for 1911-12 was 39. The eleventh session begins Sept. 3, 1912, and ends May 23, 1913.

NORTH DAKOTA

North Dakota, population 577,056, has one medical college, the College of Medicine of the State University of North Dakota, which is situated at University, near Grand Forks, a city of 12,478 people. It gives only the first two years of the medical course.

University

UNIVERSITY OF NORTH DAKOTA COLLEGE OF MEDICINE.—Organized in 1905. The faculty is composed of 5 professors and 5 instructors, a total of 10. The course consists of two years' academic work and two years of medical college subjects, occupying nine months each year. The total fees for each of the medical years are $50. The Dean is Dr. Harley E. French. The total registration for 1911-12 was 13. The eighth session begins Sept. 24, 1912, and ends June 13, 1913.

OHIO

Ohio, population 4,767,121, has six medical colleges. Two of these, the Ohio-Miami Medical College of the University of Cincinnati and the Eclectic Medical College, are located in Cincinnati, a city of 364,463 inhabitants. Cleveland, population 560,663, contains two medical schools: Western Reserve Medical College and the Cleveland-Pulte Medical College. Columbus, population 181,548, contains one medical college, the Starling-Ohio Medical College. Toledo, with 168,497 people, has one medical school, the Toledo Medical College.

Cincinnati

THE OHIO-MIAMI MEDICAL COLLEGE OF THE UNIVERSITY OF CINCINNATI, Clifton Avenue, west of Vine Street.—Organized in 1909 by the union of the Ohio Medical College (founded in 1819) with the Miami Medical College (founded in 1852). The Ohio Medical College became the Medical Department of the University of Cincinnati, April 26, 1896. Under a similar agreement, March 2, 1909, the Miami Medical College also merged into the University, when the present title was taken. The faculty consists of 45 professors, 66 associates, assistants, etc., a total of 111. The course covers four years of eight months each. The fees are a tuition fee of $125 a year; a matriculation fee of $5, payable but once, and a graduation fee of $25. The Dean is Dr. Paul G. Woolley. The total registration for 1911-12 was 113; graduates, 56. The next session begins Oct. 1, 1912, and ends June 14, 1913.

ECLECTIC MEDICAL COLLEGE, 630 West Sixth Street.—Organized in 1832 at Worthington as the Worthington Medical College. Removed to Cincinnati in 1843. In 1845 it was chartered as the Eclectic Medical Institute. In 1857 the American Medical College, organized in 1839, was merged into it, and in 1859 the Eclectic College of Medicine and Surgery, organized in 1856, merged into it. In 1910 it assumed its present title. Classes were graduated in 1833 and in all subsequent years except 1839 to 1843, inclusive. It has a faculty of 21 professors and 10 lecturers and assistants, a total of 31. The course covers four years of thirty weeks each. The fees are $100 for each year. The Dean is Dr. Rolla L. Thomas. Total registration for 1911-12 was 89; graduates, 19. The next session begins Sept. 16, 1912, and ends May 6, 1913.

Cleveland

CLEVELAND-PULTE MEDICAL COLLEGE, Prospect Avenue and Huron Road.—Homeopathic.—Organized in 1849 as the Western College of Homeopathic Medicine. The first class graduated in 1853. In 1857 it become the Western Homeopathic College and in 1870 it became the Homeopathic Hospital College when the Homeopathic Medical College for Women, organized in 1868, merged into it. In 1894 it became the Cleveland University of Medicine and Surgery. In 1898 it merged with the Cleveland Medical College, organized in 1890, and assumed the title of Cleveland Homeopathic Medical College. In 1910 Pulte Medical College of Cincinnati merged into it and the present title was assumed. The faculty numbers 53. The fees are $125 each year. The Dean is Dr. George H. Quay. Total registration for 1911-12 was 79; graduates, 14. The next session begins Oct. 1, 1912, and ends June 12, 1913.

WESTERN RESERVE UNIVERSITY MEDICAL DEPARTMENT, St. Clair Avenue and East Ninth Street.—Organized in 1843 as the Cleveland Medical College. The first class graduated in 1845. It assumed the present title in 1881. In 1910 it absorbed the Cleveland College of Physicians and Surgeons. Under the terms of the merger the

Ohio Wesleyan University will grant degrees to students enrolled in the College of Physicians and Surgeons prior to the merger. The faculty includes 40 professors and 34 lecturers, assistants, etc., a total of 74. The curriculum embraces four years of eight and one-half months each. Three years of college work are required for admission to the first year of medical course. The total fees for the first year are $142 and $135 each for the other three years. Beginning Oct. 1, 1913, the tuition fee for all students will be $150. The Secretary is Dr. F. C. Waite. The total registration for 1911-12 was 176, including 41 students of the College of Physicians and Surgeons; there were 50 graduates in 1912, including 15 from the latter school. The seventieth session begins Oct 1, 1912, and ends June 12, 1913.

Columbus

STARLING-OHIO MEDICAL COLLEGE, Buttles Avenue and Park Street.—Organized in 1907 by the union of Starling Medical College (organized 1834) with the Ohio Medical University (organized 1890). The faculty consists of 27 professors and 37 lecturers, demonstrators, etc., a total of 64. The course covers four years of eight months each. Matriculation, $5; tuition, for first year students and all entering hereafter $150, for each of the three advance classes $135. The Dean is Dr. W. J. Means. The total registration for 1911-12 was 256; graduates, 54. The next session begins Sept. 25, 1912, and ends May 28, 1913.

Toledo

TOLEDO MEDICAL COLLEGE, Cherry and Page Streets.—Organized in 1883. The first class graduated in 1883. The faculty numbers 49. The curriculum embraces four years of eight months each. The fees for each of the four years are, respectively, $137, $132, $125 and $125. The total registration for 1911-12 was 39; graduates, 9. The next session begins Oct. 1, 1912, and ends May 24, 1913.

OKLAHOMA

Oklahoma, population 1,657,155, has one medical college, the School of Medicine of the State University of Oklahoma. The work of the first and second years is given in the academic laboratories at Norman, a city of 3,040 inhabitants. The work of the third and fourth years is given in Oklahoma City, which has a population of 64,205 and which is eighteen miles north of Norman.

Norman and Oklahoma City

STATE UNIVERSITY OF OKLAHOMA SCHOOL OF MEDICINE.—Organizen in 1900. Gave only the first two years of the medical course until 1910, when a clinical department was established at Oklahoma City. It has a faculty of 12 professors and 31 instructors, a total of 43. The course is four years of nine months each. An optional course of six years is offered for the degrees of B.S., and M.D. The total fees for the four years are, respectively, $55, $28, $100 and $105. The Dean is Dr. Robert F. Williams, 317 East Fourteenth Street, Oklahoma City. The total registration for 1911-12 was 51; graduates, 10. The thirteenth session begins Sept. 26, 1912, and ends June 12, 1913.

OREGON

Oregon, population 672,765, has two medical colleges: The Medical Department of Willamette University, located at Salem, a city of 14,094 people, and the University of Oregon Medical Department, in Portland, a city of 207,214 population.

Portland

UNIVERSITY OF OREGON MEDICAL DEPARTMENT, Lovejoy and Twenty-Third Streets.—Organized in 1887. The first class graduated in 1888. It has a faculty of 16 professors and 30 lecturers, assistants, etc., a total of 46. The course is four years of eight months each. Fees: First year, $142.50; second, $137.50; third, $107.50, and for the fourth, $57.50. The Dean is Dr. K. A. J. Mackenzie. The total registration for 1911-12 was 67; graduates, 17. The twenty-sixth session begins Oct. 1, 1912, and ends June 1, 1913.

Salem

MEDICAL DEPARTMENT WILLAMETTE UNIVERSITY.—Organized in 1865 at Salem. Classes were graduated in 1867 and in all subsequent years except 1896. It moved to Portland in 1878, but returned to Salem in 1895. The faculty numbers 18. The course is four years of eight months each. The fees for the four years, respectively, are $122.50, $110, $87.50 and $57.50. The Dean is Dr. W. H. Byrd. The total registration for 1911-12 was 60; graduates, 12. The next session begins Oct. 1, 1912, and ends June 1, 1913.

PENNSYLVANIA

Pennsylvania, population 7,665,111, has seven medical colleges. Of these Philadelphia, having a population of 1,549,008, contains six, as follows: University of Pennsylvania Department of Medicine, Jefferson Medical College, Hahnemann Medical College, Woman's Medical College of Pennsylvania, Medico-Chirurgical College of Philadelphia and Temple University Department of Medicine. The other school, the Medical Department of the University of Pittsburgh, is situated in Pittsburgh, a city of 533,905.

Philadelphia

UNIVERSITY OF PENNSYLVANIA DEPARTMENT OF MEDICINE, Thirty-sixth Street and Hamilton Walk.—Organized in 1765. Classes were graduated in 1768 and in all subsequent years except 1772-79, inclusive. The original title was the Department of Medicine, College of Philadelphia, which was changed to the present title in 1791. It granted the first medical diploma issued in America. The faculty is made up of 30 professors, 16 associate, adjunct and assistant professors and 120 demonstrators, lecturers, associates, instructors, etc., a total of 166. The requirements for admission are the equivalent of work prescribed for the first two years in recognized colleges, which work must include a knowledge of physics, chemistry and general biology or zoology with laboratory work as specified by the College Entrance Examination Board and, in addition, two foreign languages, one of which must be French or German. The course embraces study of four years of 34 weeks each. The total fees for each of the four years are, respectively, $218, $213, $210 and $211.50. The Dean is Dr. William Pepper. Total registration for 1911-12 was 367; graduates, 124. The next session begins Sept. 27, 1912, and ends June 18, 1913.

JEFFERSON MEDICAL COLLEGE, Tenth and Walnut Streets.—Organized in 1825 as the Medical Department of Jefferson College, Cannonsburg. The first class graduated in 1826. The present title was assumed in 1838. It has a faculty of 32 professors and 102 lecturers, demonstrators, etc., a total of 134. The course of study covers graded work of four years of eight and a half months each. An optional fifth year is offered. The tuition is $180 a year, with a matriculation fee of $5, paid but once. The Subdean is Dr. Ross V. Patterson. The total registration for 1911-12 was 616; graduates, 148. The eighty-eight session begins Sept. 23, 1912, and ends June 7, 1913.

MEDICO-CHIRURGICAL COLLEGE OF PHILADELPHIA, Cherry Street, between Seventeenth and Eighteenth Streets.—Organized in 1881. The first class graduated in 1882. The faculty is composed of 36 professors and 66 lecturers, assistants, etc., a total of 102. The work embraces four years of eight months each. The fees for each of the four years are, respectively, $162.50, $159, $155.50 and $153. The Dean is Dr. Seneca Egbert. The total registration for 1911-12 was 341; graduates, 77. The thirty-second session begins Sept. 23, 1912, and ends June 6, 1913.

WOMAN'S MEDICAL COLLEGE OF PENNSYLVANIA, Twenty-first and N. College Avenue.—Organized in 1850. Classes were graduated in 1851 and in all subsequent years except 1861 and 1862. It has a faculty of 10 professors and 42 assistants, lecturers, etc., in all 52. The curriculum covers four years of eight months each. Fees for each of the four years are, respectively, $161, $156, $154 and $153. The Dean is Dr. Clara Marshall. The total registration for 1911-12 was 112; graduates, 30. The sixty-third session begins Sept. 18, 1912, and ends June 4, 1913.

HAHNEMANN MEDICAL COLLEGE AND HOSPITAL, 226 North Broad Street.—Organized in 1848 as the Homeopathic Medical College of Pennsylvania. In 1869 it united with the Hahnemann Medical College of Philadelphia, taking the present title. The first class graduated in 1849. It has a faculty of 31 professors and 57 lecturers, instructors, etc., in all 88. The work covers four years of eight and a half months each. Fees: For each year, $150; matriculation, $5; laboratory fee, $10. The Dean is Dr William B. Van Lennep. The total registration for the college year 1911-12 was 116; graduates, 35. The sixty-fifth session begins Sept. 23, 1912, and ends June 5, 1913.

THE TEMPLE UNIVERSITY DEPARTMENT OF MEDICINE, Eighteenth and Buttonwood Streets.—Organized in 1901. The first class graduated in 1904. The faculty numbers 84. It gives a four-year day course. The fees are $150 per year. The Dean is Dr. Frank C. Hammond. The total registration for 1911-12 was 81; graduates, 25. The twelfth session begins Sept. 18, 1912, and ends June 5, 1913.

Pittsburgh

UNIVERSITY OF PITTSBURGH MEDICAL DEPARTMENT, Grant Boulevard.—Organized in 1886 as the Western Pennsylvania Medical College. Became the Medical Department of the University of Pittsburgh in 1908. Removed to the University campus in 1910. The first class graduated in 1887. The faculty is composed of 23 professors and 78 associates, assistants, etc., 103 in all. Entrance requirements are a four year high school course, or its equivalent, plus one year of recognized college work, which must have included chemistry, physics and biology. The course of study embraces four years of eight and a half months each. The total fees per year are $220 or $210 if paid in advance. The Dean is Dr. Thomas S. Arbuthnot. The total registration for 1911-12 was 174; graduates, 67. The twenty-seventh session begins Sept. 30, 1912, and ends June 25, 1913.

SOUTH CAROLINA

South Carolina, population 1,515,400, has one medical college, situated in Charleston, a city of 58,833 people.

Charleston

THE MEDICAL COLLEGE OF THE STATE OF SOUTH CAROLINA, Queen and Franklin Streets.—Founded in 1823 as the Medical College of South Carolina. In 1832 it was chartered with the present title. Classes were graduated in 1825 and in all subsequent years except 1861 to 1865, inclusive. It has a faculty of 11 professors and 31 lecturers, instructors, etc., a total of 42. The course covers four years of eight months each. The total fees each year are $100. The Dean is Dr. Robert Wilson. Total enrolment for 1911-12 was 164; graduates, 65. The ninetieth session begins Oct. 1, 1912, and ends June 2, 1913.

SOUTH DAKOTA

South Dakota, population 583,888, has one medical college, the University of South Dakota College of Medicine, located at Vermilion, a city of 2,147 people.

Vermilion

UNIVERSITY OF SOUTH DAKOTA COLLEGE OF MEDICINE.—Organized in 1907. Offers only the first two years of the medical course. Two years work in a college of liberal arts is required for admission. The faculty numbers 9. The Dean is Christian P. Lommen, B.S. The total registration for 1911-12 was 9. The sixth session begins Sept. 17, 1912, and ends June 12, 1913.

TENNESSEE

Tennessee, population 2,184,789, has six medical colleges. Of these Vanderbilt University Medical Department and Meharry Medical College are situated in Nashville, a city with a population of 106,476. Knoxville, population 37,758, contains one college, the Tennessee Medical College. Memphis Hospital Medical College, the Medical Department of the University of Tennessee and the University of West Tennessee are located in Memphis, population 136,363.

Knoxville

MEDICAL DEPARTMENT OF LINCOLN MEMORIAL UNIVERSITY, Cleveland Street and Dameron Avenue.—Organized in 1889 as the Tennessee Medical College. Has been affiliated with the Lincoln Memorial University since 1906. Assumed present title in 1909. The first class graduated in 1890. It has a faculty of 23 professors and 13 assistants, a total of 36. The curriculum covers four years of seven months each. Fees: Tuition, each year, $100; matriculation fee, $5; graduation fee, $25. The total registration for 1911-12 was 97; graduates, 25. The twenty-fourth session begins Oct. 1, 1912, and ends May 11, 1913.

Memphis

UNIVERSITY OF TENNESSEE MEDICAL DEPARTMENT, 718 Union Avenue.—Organized 1876 at Nashville as Nashville Medical College. Became Medical Department University of Tennessee 1879. First class graduated 1877 and a class graduated each subsequent year. In 1909 it united with the Medical Department of the University of Nashville to form the joint Medical Department of the Universities of Nashville and Tennessee. Union dissolved in 1911, the University of Nashville Medical Department became extinct and this college removed to Memphis, where it united with the College of Physicians and Surgeons. Total registration in the combined schools in 1911-12 was 155; graduates, 48. The next session begins Sept. 25, 1912, and ends May 15, 1913.

MEMPHIS HOSPITAL MEDICAL COLLEGE, Marshall Avenue and Myrtle Street.—Organized in 1880. The first class graduated in 1881. It has a faculty of 11 professors and 35 lecturers, instructors, etc., a total of 46. The course covers four years of thirty weeks each. The total fees for each of the first three years are $125, for the fourth, $150. The Dean is Dr. W. B. Rogers. Total registration for 1911-12 was 319; graduates, 104. The thirty-third annual session begins Oct. 1, 1912, and closes May 16, 1913.

MEDICAL DEPARTMENT OF THE UNIVERSITY OF WEST TENNESSEE. Colored, 1190 South Phillips Place.—Organized in 1900. The first class graduated in 1904 and a class graduated each subsequent year. It has a faculty of 18. The course is four years of thirty weeks each. The fees are $50 per year; graduation $10 extra. The Dean is Dr. M. V. Lynk. Registration for 1911-12 was 37; graduates, 9. The thirteenth session begins Sept. 16, 1912, and ends May 1, 1913.

Nashville

VANDERBILT UNIVERSITY MEDICAL DEPARTMENT.—This school was founded in 1874. The first class graduated in 1875. The faculty consists of 25 professors and 40 lecturers, a total of 65. The course covers four years of eight months each. The total fees for each of the first three years are $125, and for the fourth year, $150. The Secretary is Dr. L. E. Burch. The total registration for 1911-12 was 392; graduates, 66. The thirty-ninth session begins Sept. 19, 1912, and ends May 20, 1913.

MEHARRY MEDICAL COLLEGE, Colored, Maple and Chestnut Streets.—This school was organized in 1876 and is the Medical Department of Walden University. The faculty is made up of 12 professors and 14 instructors, demonstrators, etc., 26 in all. The work embraces four years of thirty weeks each. The total fees for each of the first three years are $60 and for the fourth year, $75. The Dean is Dr. G. W. Hubbard. Total registration for 1911-12 was 335; graduates, 70. The thirty-seventh session begins Sept. 11, 1912, and ends April 21, 1913.

TEXAS

Texas, population 3,096,542, has four medical colleges. The University of Texas Department of Medicine is located at Galveston, a city of 36,981 inhabitants. The Fort Worth School of Medicine is at Fort Worth, population 73,312. The Baylor University College of Medicine and the Southern Methodist University Medical College are situated in Dallas, population 92,104.

Dallas

BAYLOR UNIVERSITY COLLEGE OF MEDICINE, 435-37 South Ervay Street.—Organized in 1900 as the University of Dallas Medical Department. In 1903 it took its present name and became the Medical Department of Baylor University at Waco. It acquired the charter of Dallas Medical College in 1904. The first class graduated in 1901. The faculty numbers 34. The course is four years of seven months each. The fees are $100 each year; matriculation fee of $5, paid but once; graduation fee, $25. The Dean is Dr. E. H. Cary. Total registration for 1911-12 was 68; graduates, 20. The thirteenth session begins Oct. 1, 1912, and ends June 1, 1913.

SOUTHERN METHODIST UNIVERSITY MEDICAL COLLEGE.—Organized in 1903 as the Southwestern University Medical College. Name changed as above in 1912. The first class graduated in 1904. It has a faculty of 20 professors and 10 instructors, assistants, etc., a total of 30. The course of instruction covers four years of eight months each. The fees for the four years are, respectively, $110, $105, $100 and $125. The Dean is Dr. John O. McReynolds. Total registration for 1911-12 was 62; graduates, 14. The tenth session begins Oct. 1, 1912, and ends May 30, 1913.

Fort Worth

FORT WORTH SCHOOL OF MEDICINE, Calhoun and Fifth Streets.—Organized in 1894 as the Medical Department of Forth Worth University. In 1912 the latter institution changed its name to Texas Christian University. The first class graduated in 1895. Present title in 1911. It has a faculty of 14 professors and 35 lecturers, assistants etc., in all 52. The course covers four years of seven and a half months each. The total fees for each of the four years, respectively, are $114, $113, $108 and $125. The Dean is Dr. W. R. Thompson. The total registration for 1911-12 was 71; graduates, 17. The nineteenth session begins Sept. 30, 1912, and ends May 15, 1913.

Galveston

UNIVERSITY OF TEXAS DEPARTMENT OF MEDICINE, on the Strand, between Ninth and Tenth Streets.—Organized in 1891. The first class graduated in 1892. It has a faculty of 13 professors and 15 lecturers, a total of 28. The curriculum embraces four years of eight months each. The entrance requirement is one year of collegiate work in addition to a four-year high school education. The total fees for the four years, respectively, are $61, $31, $21 and $6. The Dean is Dr. William S. Carter. Total registration for 1911-12 was 162; graduates, 46. The twenty-second session begins Oct. 1, 1912, and ends May 31, 1913.

UTAH

Utah, population 373,351, has one medical college, the Medical Department of the University of Utah, situated at Salt Lake City, which has 92,777 people.

Salt Lake City

UNIVERSITY OF UTAH SCHOOL OF MEDICINE.—Organized in 1906. Gives only first two years of the medical course. Each course covers thirty-six weeks. Two years of collegiate work are required for admission. The medical faculty consists of 4 professors and 7 lecturers and assistants, a total of 11. The fees are $55 each year. The Acting-dean is Dr. Charles T. Vorhies. Total registration for 1911-12 was 12. The sixth session begins Sept. 16, 1912, and ends May 30, 1913.

VERMONT

Vermont, population 355,956, has one medical school, located at Burlington, a town of 20,468 people.

Burlington

UNIVERSITY OF VERMONT COLLEGE OF MEDICINE, Pearl Street, College Park.—Organized with complete course in 1822. Classes graduated in 1823 to 1836, inclusive, when the school was suspended. It was reorganized in 1853 and classes were graduated in 1854 and in all subsequent years. The faculty numbers 48. The course of study covers four years of nine months each. The total fees for each of the first three years are $135, and $160 for the fourth year. The Registrar is Dr. M. W. Andrews. The total registration for 1911-12 was 176; graduates, 47. The next session begins Sept. 25, 1912, and ends June 25, 1913.

VIRGINIA

Virginia, population 2,061,612, has three medical colleges, one, the Medical Department of the University of Virginia, situated in Charlottesville, population 6,765, and two, the Medical College of Virginia and the University College of Medicine, in Richmond, population 127,628.

Charlottesville

UNIVERSITY OF VIRGINIA DEPARTMENT OF MEDICINE.—Organized in 1827. Classes were graduated in 1828 and in all subsequent years except 1865. It has a faculty of 14 professors and 18 lecturers, instructors, assistants, etc., a total of 32. The requirements for admission are the completion of a four years' high school course, or its equivalent, and a year of college work devoted to chemistry, physics and biology. Total fees each years are $140. The Dean is Dr. R. H. Whitehead. The total registration for 1911-12 was 82; graduates, 12. The eighty-fourth session begins Sept. 12, 1912, and ends June 14, 1913.

Richmond

MEDICAL COLLEGE OF VIRGINIA, Marshall and College Streets.—Organized in 1838 as the Medical Department of Hampden Sydney College. Present title was taken in 1854. Classes were graduated in 1840 and in all subsequent years. It has a faculty of 20 professors and 47 lecturers, instructors, etc., a total of 67. The requirement for admission is a full four-year high school education. The course embraces four years of eight months each. Fees, $100 each year; graduation fee, $30. The Dean is Dr. Christopher Tompkins. The total registration for the college year 1911-12 was 242; graduates, 43. The seventy-fifth session begins Sept. 17, 1912, and ends June 3, 1913.

UNIVERSITY COLLEGE OF MEDICINE, Twelfth and Clay Streets.—Organized in 1893. The first class graduated in 1894. It has a faculty of 68. Curriculum covers four years of eight months each. The total fees are $100 for each year; graduation fee, $30. The Dean is Dr. Alfred L. Gray. The total registration for the college year 1911-12 was 160; graduates, 35. The twentieth session begins Sept. 18, 1912, and ends May 29, 1913.

WEST VIRGINIA

West Virginia, population 1,221,119, has one medical college, the School of Medicine of West Virginia University, which offers the first two years of the medical course. It is located at Morgantown, a city of 9,150 population.

Morgantown

WEST VIRGINIA UNIVERSITY SCHOOL OF MEDICINE.—Organized in 1902, and gives only the first two years of the medical course. One year of work in an approved college of liberal arts is required for admission. Sessions extend through nine months. The faculty numbers 9. Fees: For residents of the state, $25 each year; for non-residents, $50. The Dean is Dr. John N. Simpson. The total enrolment for 1911-12 was 19. The next session begins Sept. 16, 1912, and ends June 15, 1913.

WISCONSIN

Wisconsin, population 2,333,860, has three medical colleges, the Medical Department of the University of Wisconsin, which teaches the first two years of the medical course, and is located at Madison, a city of 25,531 people, and the Milwaukee Medical College and Wisconsin College of Physicians and Surgeons, situated in Milwaukee, a city of 373,857 people.

Madison

UNIVERSITY OF WISCONSIN COLLEGE OF MEDICINE.—Organized in 1907. Gives only the first two years of the medical course. For matriculation at least two years in a college of arts and science or an equivalent training are required, including two years of Latin, a reading knowledge of French and German, and at least a year's work in physics, chemistry and biology. It has a faculty of 10 professors and 7 lecturers, instructors etc., a total of 17. Tuition fees: For residents of the state, $80 each year; for non-residents, $130. The Dean is Dr. Charles R. Bardeen. The registration for 1911-12 was 60. The fifth session begins Sept. 30, 1912, and ends June 22, 1913.

Milwaukee

MILWAUKEE MEDICAL COLLEGE, Ninth and Wells Streets.—Organized in 1894. The first class graduated in 1895. It became the Medical Department of Marquette University in 1907. It has a faculty of 36 professors and 34 lecturers, instructors, etc., a total of 70. The course covers four years of eight months each. The total fees are $135 each for the first three years and $150 for the fourth year. The Dean is Dr. Warren B. Hill. The total registration for 1911-12 was 242; graduates, 48. The nineteenth session begins Oct. 1, 1912, and ends June 2, 1913.

WISCONSIN COLLEGE OF PHYSICIANS AND SURGEONS, Fourth Street and Reservoir Avenue.—Organized in 1893. The first class graduated in 1894. In 1898 it became the Medical Department of Carroll College. It has a faculty of 20 professors and 36 lecturers, instructors, etc., a total of 56. The curriculum includes four years of eight months each. Total fees each year for the four years, respectively, are $145, $140, $135 and $150. The Dean is Dr. Thomas C. Phillips. The total registration for 1911-12 was 43; graduates, 12. The twenty-first session begins Sept. 30, 1912, and ends May 30, 1913.

PHILIPPINE ISLANDS

The Philippine Archipelago, having a population of 7,635,436, has one medical college, the University of the Philippines College of Medicine and Surgery. It is located in the City of Manila, which in 1903 had a population of 219,928.

Manila

UNIVERSITY OF THE PHILIPPINES COLLEGE OF MEDICINE AND SURGERY, Manila.—Organized in 1907 as the Philippine Medical School, under the support of the government of the Philippine Islands. Present title in 1910. The faculty numbers 53. In 1914 and thereafter two years of collegiate work leading to the degree of Bachelor of Arts will be required for admission. The course extends over five years of nine months each with an additional one year of intern service. The Dean is Dr. William Everett Musgrave. The total registration for 1911-12 was 83; graduates, 9. The sixth session begins July 1, 1912, and ends April 1, 1913.

CANADA

The Dominion of Canada has eight medical colleges all of which now require a four-year course, including in the first year courses in physics, chemistry and biology. This is practically equivalent to the courses in the colleges of this country which require one year of college work for admission, including the science courses named. None of the Canadian colleges has fixed a minimum requirement of two years of collegiate work or its equivalant preliminary to or as a part of the medical course.

Manitoba

MANITOBA MEDICAL COLLEGE, Winnipeg.—It is the Medical Faculty of the University of Manitoba. Organized in 1883, first class graduated in 1886 and a class graduated each subsequent year. The faculty numbers 50. The fees are $155 for the first year and $150 for each subsequent year. The entire course covers five years, the first year including courses in physics, chemistry and biology. The Dean is Dr. H. H. Chown, 263 Broadway, Winnipeg. Total registration for 1911-12 was 142; graduates, 19. The next session begins Oct. 1, 1912, and ends May 1, 1913.

Nova Scotia

DALHOUSIE MEDICAL COLLEGE, MEDICAL FACULTY OF DALHOUSIE UNIVERSITY, Halifax.—Organized 1867 as Halifax School of Medicine, united same year with Dalhousie University, separately incorporated 1876, affiliated with Dalhousie University 1885, first class graduated 1872 and a class graduated each subsequent year except 1873 and 1886. The Medical Faculty of Dalhousie University is the Examining Board for Nova Scotia and teaches only the premedical branches; Halifax Medical College taught the medical courses, but the Medical Faculty conducted the examinations and granted the degrees. Entire control secured by Dalhousie University in 1911. Its faculty numbers 29. Fees for each of the first two years are $75; for the third and fourth years, $100 and for the fifth year, $90. The course covers five years, the first year including courses in physics, chemistry and biology. The Dean is Dr. A. W. H. Lindsay. The total registration for 1911-12 was 66; graduates, 10. The next session begins Aug. 29, 1912, and ends April 24, 1913.

Ontario

UNIVERSITY OF TORONTO FACULTY OF MEDICINE, Toronto.—Organized 1843 as the Medical Faculty of King's College. Abolished in 1853. Reestablished in 1887. In 1903 it absorbed Trinity Medical College. The course of study covers five years of eight months each, the first year including courses in physics, chemistry and biology. It has a faculty of 46 professors and 107 lecturers, associates, etc., a total of 153. The fees are $150 each year. The Secretary is Dr. A. Primrose. The total registration for 1911-12 was 468; graduates, 53. The next session begins Oct. 1, 1912, and ends May 31, 1913.

MEDICAL FACULTY OF QUEEN'S UNIVERSITY, Kingston.—Organized 1854, first class graduated in 1855, and a class graduated each subsequent year. The faculty was originally a department of the University, but a separation took place in 1866, when the school was conducted under the charter of the Royal College of Physicians and Surgeons at Kingston. In 1892 the school again became an integral part of Queen's University. The faculty includes 25 professors and 14 assistants, instructors, etc., a total of 39. The fees amount to $105 each year; fee for M.D., C.M. degrees, $30. The course covers five years of seven months each, the first year including courses in physics, chemistry and biology. The total registration in 1911-12 was 249; graduates, 53. The Dean is Dr. J. C. Connell. The next session begins Sept. 12, 1912, and ends April 30, 1913.

MEDICAL DEPARTMENT OF WESTERN UNIVERSITY, London.—Organized in 1881, first class graduated in 1883 and a class graduated each year subsequently. The faculty numbers 18. The course is five years of seven and a half months each, the first year including courses in physics, chemistry and biology. The tuition is $100 each year. The Registrar is Dr. W. E. Waugh. Total registration for 1911-12 was 125; graduates, 38. The next session begins Sept. 16, 1912, and ends May 1, 1913.

Quebec

MEDICAL FACULTY OF MCGILL UNIVERSITY.—Founded 1824 as Montreal Medical Institution; became the Medical Faculty of McGill University in 1829; first class graduated under the university auspices in 1833. No session between 1836-39 owing to political troubles. In 1905 it absorbed the Faculty of Medicine of the University of Bishop College. The course extends over five years of eight months each. The faculty numbers 104. The total fees for each of the five years, respectively, are $160, $160, $150, $154 and $184. The total registration for 1910-11 was 308; graduates, 31. The Registrar is Dr. John W. Scane. The next session begins Sept. 30, 1912, and ends June 6, 1913.

LAVAL UNIVERSITY MEDICAL DEPARTMENT, Quebec.—The Quebec School of Medicine, organized in 1848, became in 1852 Medical Department of Laval University; first class graduated in 1855, and a class graduated each subsequent year. The faculty numbers 24. The fees are $60 each year. The course extends over five years, the first year including courses in physics, chemistry and biology. The Dean is Dr. Michael Joseph Ahern, Quebec. Total registration for 1911-12 was 72; graduates, 10. The next session begins Sept. 10, 1912, and ends June 1, 1913.

MONTREAL SCHOOL OF MEDICINE AND SURGERY, Montreal.—Organized in 1878 as the Medical Department of Laval University. Present name assumed in 1911. First class graduated in 1879. The faculty numbers 60. The course extends over five years. The Dean is Dr. E. P. Lachapelle. The total registration for 1911-12 was 195; graduates, 51. The next session begins Oct. 1, 1912, and ends June 20, 1913

FOREIGN MEDICAL COLLEGES

This list has been prepared from data collected by the Council on Medical Education.

ARGENTINE REPUBLIC

Buenos Ayres.—Universidad Nacional de Buenos Aires.
Cordova.—Universidad Nacional.

AUSTRALIA

Adelaide.—University of Adelaide.
Brisbane.—University of Brisbane.
Melbourne.—University of Melbourne.
Perth.—University of Perth.
Sydney.—University of Sydney.

AUSTRIA

Graz, Styria.—K. K. Karl Franzens Universität.
Innsbruck, Tyrol.—K. K. Leopold Franzens Universität.
Krakow, Galicia.—C. K. Uniwersytet Jagiellonski w Krakowie.
Lemberg, Galacia.—C. K. Uniwersytet Imienia Cesarza Franciszka I.
Prague, Bohemia.—K. K. Deutsche Karl Ferdinands Universität.
Prague, Bohemia.—C. K. Ceská Universita Karlo-Ferdinandova.
Vienna, Nether Austria.—K. K. Universität.

BELGIUM

Brussels.—Université Libre de Bruxelles.
Ghent.—Université d l'etat de Gand.
Liege.—Université de Liège.
Louvain.—Université Catholique.

BOLIVIA

La Paz.—Universidad de La Paz.
Sucre.—Universidad de Sucre.

BRAZIL

Bahia.—Faculdade de Medicina, Chirurgia e Pharmacia.
Porto Allegre.—Faculdade Livre de Medicina e Pharmacia.
Rio de Janeiro.—Faculdade de Medicina, Cirurgia e Pharmacia.

CANADA

Halifax, Nova Scotia.—Dalhousie University.
Kingston, Ontario.—Queen's University.
London, Ontario.—Western University.
Montreal, Quebec.—McGill University.
Montreal, Quebec.—Université Laval.
Quebec, Quebec.—Université Laval.
Toronto, Ontario.—University of Toronto.
Winnipeg, Manitoba.—University of Manitoba (Manitoba Medical College).

CHILE

Santiago.—Universidad de Chile.

CHINA

Hongkong.—Hongkong College of Medicine.
Nanking.—East China Union Medical College.
Pekin.—The Union Medical College.
Shanghai.—Woman's Medical School.
Tientsin.—Imperial Medical College.
Tsi-nan-fu.—Union Medical College.
Canton.—University Medical College.
Canton.—South China Medical College.

COLOMBIA

Bogota.—Universidad de Bogota.

CUBA

Havana.—Universidad de la Habana.

DENMARK

Copenhagen.—Kjobenhavns Universitet.

ECUADOR

Quito.—Universidad Central de Ecuador.

EGYPT

Cairo.—Kasr il Aini (School of Medicine).

ENGLAND

Birmingham.—University of Birmingham.
Bristol.—University of Bristol.
Cambridge.—University of Cambridge.
Durham.—Durham University (Durham College of Medicine).
Leeds.—University of Leeds.
Liverpool.—University of Liverpool.
London.—University of London (including the following Medical Schools: (*a*) St. Bartholomew's Hospital, (*b*) Charing Cross Hospital, (*c*) St. George's Hospital, (*d*) Guy's Hospital, (*e*) King's College, (*f*) London Hospital, (*g*) St. Mary's Hospital, (*h*) Middlesex Hospital, (*i*) St. Thomas's Hospital, (*j*) University College, (*k*) Westminster Hospital, and (*l*) Royal Free Hospital (School of Medicine for Women).
Manchester.—Victoria University (Owen's College, founded in 1851, was merged in Victoria University in 1905).
Oxford.—University of Oxford.
Sheffield.—University of Sheffield.

FRANCE

Faculties of Medicine (to the degree of doctor in medicine, including the five required examinations).
Bordeaux.—Université de Bordeaux.
Lille.—Université de Lille.
Lyons.—Université de Lyon.
Montpellier.—Université de Montpellier.
Nancy.—Université de Nancy.
Paris.—Université de Paris.
Toulouse.—Université de Toulouse.
Preparatory Schools of Medicine.—Graduates of the 16 following schools are allowed to take the first two examinations if they are presided over by some member of a medical faculty:
(*a*) *"Full Exercise,"* or complete course (covering the work of 16 trimesters).
Algiers (Africa).—Académie d'Alger.
Marseilles.—Université d'Aix-Marseille.
Nantes.—Ecole de Plein Exercice de Médecine et de Pharmacie (part of the University of Rennes).
Rennes.—Université de Rennes.
(*b*) *Reorganized Schools.*—(Completing the first 12 trimesters.)
Amiens.—Ecole Préparatoire de Médecine et de Pharmacie (part of the University of Lille).
Angers.—Ecole Préparatoire de Médecine et de Pharmacie (part of the University of Rennes).
Besancon.—Université de Besancon.
Caen.—Université de Caen.
Clermont.—Université de Clermont.
Dijon.—Université de Dijon.
Grenoble.—Université de Grenoble.
Limoges.—Ecole de Médecine et de Pharmacie (part of the University of Poitiers.)
Poitiers.—Université de Poitiers.
Reims.—Ecole Préparatoire de Médecine et de Pharmacie (part of the University of Paris).
Rouen.—Ecole de Médecine et de Pharmacie (part of the University of Caen).
Tours.—Ecole Préparatoire de Médecine et de Pharmacie (part of the University of Poitiers).

GERMANY

Berlin, Prussia.—Königliche Friedrich-Wilhelm Universität.
Bonn, Prussia.—Rheinische Friedrich-Wilhelms-Universität.
Breslau, Prussia.—Königliche Universität.
Erlangen, Bavaria.—Königl. Friedrich-Alexanders Universität.
Freiberg, Baden.—Grossherzogliche Badische Albert-Ludwigs-Universität.
Giessen, Hesse.—Grossherzogliche Hessische Ludwigs-Universität.
Gottingen, Prussia.—Königliche Georg-August-Universität.
Greifswald, Prussia.—Königliche Universität.
Halle, Prussia.—Vereinigte Friedrichs-Universität Halle-Wittenberg.
Heidelberg, Baden.—Grossherzogliche Ruprecht-Karls-Universität.
Jena, Thuringia.—Grossherzogliche und Herzogliche Sächsische Gesamt-Universität.
Kiel, Prussia.—Königliche Christian-Albrechts-Universität.
Königsberg, Prussia.—Königliche Albertus-Universität.
Leipzig, Saxony.—Universität.
Marburg, Prussia.—Universität.
Munich, Bavaria.—Königliche Bayr. Ludwig-Maximilians-Universität.
Rostock, Mecklenburg.—Universität.
Strassbury, Alsace-Lorraine.—Kaiser-Wilhelms-Universität.
Tübingen, Wurtemberg.—Königliche Eberhard-Karls-Universität.
Würzburg, Bavaria.—Königliche Julius-Maximilians Universität.

GREECE

Athens.—National University.

GUATEMALA

Guatemala.—Facultad de Medicina.

HAITI

Port au Prince.—L'Ecole Nationale de Médecine.

HONDURAS

Tegucigalpa.—Facultad de Medicina.

HUNGARY

Budapest.—Budapesti Királyi Magyar Tudomány-Egyetem (Royal Hungarian University).
Klausenburg.—Kolozsvári Magyar Királyi Ferencz-József Tudomány-Egyetem (Royal Hungarian Franz-Joseph University).
Pressburg.—Royal Hungarian University.

ICELAND

Reykjavik.—Loeknaskoli (School of Physicians).

INDIA

Bombay.—University of Bombay (Grant Medical College).
Calcutta.—University of Calcutta (Medical College of Bengal).
Lahore.—Panjab University (Lahore Medical College).
Lucknow.—King George's Medical College.
Madras.—University of Madras (Madras Medical College).
Ceylon (Columbo).—The Ceylon Medical College.
Note.—There are several minor medical colleges in India not accredited by the examining board in England.

IRELAND

Belfast.—Queen's University.
Dublin.—National University of Ireland (including University College, Dublin; University College, Cork; University College, Galway).
Dublin.—University of Dublin (The School of Physic in Ireland, Trinity College; Catholic University Medical School).
Dublin.—Royal College of Surgeons in Ireland Schools of Surgery (including the Carmichael College of Medicine and the Ledwich School of Medicine).

ITALY

Bologna.—Regia Università degli Studi.
Cagliari, Sardinia.—Università degli Studi.
Camerino.—Libera Università degli Studi.
Catania.—Regia Università degli Studi di Catania.
Ferrara.—Libera Università degli Studi di Ferrara.
Florence.—Regia Instituto di Studi Superiori, Practici e di Perfezionamento.
Genoa.—Regia Università degli Studi.
Messina.—Regia Università degli Studi.
Modena.—Regia Università degli Studi.
Naples.—Regia Università degli Studi.
Padua.—Regia Università degli Studi.
Palermo.—Regia Università degli Studi.
Parma.—Regia Università degli Studi.
Pavia.—Regia Università degli Studi.
Perugia.—Università Libra degli Studi.
Pisa.—Regia Università degli Studi.
Rome.—Regia Università degli Studi.
Sassari.—Regia Università degli Studi.
Siena.—Regia Università degli Studi.
Turin.—Regia Università degli Studi.

JAPAN

Kyoto.—Imperial University (a part of the medical school is located at Fukuoka).
Tamsui, Formosa.—Medical School of Formosa.
Tokyo.—Imperial University (Tokio Medical College became Medical Department in 1877).
Medical schools are located also at Chiba, Sendai, Okayama, Kanazawa and Nagasaki.

MADAGASCAR

Tananarive.—L'Ecole de Médecine.

MALAYA

Singapore.—Malaya Medical School.

MEXICO

Mexico.—Escuela Nacional de Medicina.
Puebla.—Colegio del Estado de Puebla.
Oaxaca.—Instituto de ciensias de Oaxaca.
Jalapa.—Facultad de ciencias medicas de Veracrus.
Campeachy.—Instituto Campechano de Medicina y Cirurgia.
San Luis Potosi.—Escuela de Medicina de San Luis Potosi.
Guadalajara.—Escuela de Medicina y de Farmacia de Jalisco.
Merida.—Escuela de Medicina y de Farmacia de Yucatán.
Morelia.—Escuela de Medicina y de Farmacia de Michoacán.

NETHERLANDS

Amsterdam.—Universiteit van Amsterdam.
Groningen.—Rijks-Universiteit te Groningen.
Leyden.—Rijks-Universiteit.
Utrecht.—Rijks-Universiteit.

NEW ZEALAND

Wellington.—University of New Zealand (affiliated with the University of Cambridge, England).

NORWAY

Christiania.—Kongelige Frederiks Universitet.

PERU

Lima.—Universidad Mayor de San Marcos.

PORTUGAL

Coimbra.—Universidade de Coimbra.
Lisbon.—Escola Medico-Cirurgica.
Oporto.—Escola Medico-Cirurgica.

ROUMANIA

Bukharest.—Universitatea din Bucuresti.
Jassy.—Universitatea din Jasi.

RUSSIA

Helsingfors, Finland.—Kejserliga Alexanders Universitet.
Jurjev (formerly Dorpat).—Imperatorski Jurjevskij Universitet.
Kazan.—Imperatorskij Kasanskij Universitet.
Kharkof.—Imperatorskij Charkovskij Universitet.
Kief.—Imperatorskij Universitet Sv. Vladimira.
Moscow.—Imperatorskij Moskovskij Universitet.
Odessa.—Imperatorskij Novorossijskij Universitet.
St. Petersburg.—Zenskij Medicinskij Institut (Medical High School for Women).
St. Petersburg.—Shkola Lekarskih Pomostnitz (School for Medical Assistants).
Tomsk, Siberia.—Tomskij Universitet.
Warsaw.—Imperatorskij Varsavskij Universitet.

SCOTLAND

Aberdeen.—University of Aberdeen.
Dundee.—University of St. Andrews (University College).
Edinburgh.—University of Edinburgh.
Edinburgh.—School of Medicine of the Royal Colleges (including the Surgeons' Hall School).
Glasgow.—University of Glasgow (including Queen Margaret College).
Glasgow.—Anderson's College Medical School.
Glasgow.—St. Mungo's College and Glasgow Royal Infirmary.
Glasgow.—Western Medical School.

SIAM

Bangkok.—Royal Medical College.

SPAIN

Barcelona.—Universidad de Barcelona.
Cadiz.—Facultad de Medicina.
Granada.—Universidad de Granada.
Madrid.—Universidad de Central de Espana.
Santiago.—Universidad.
Saragossa.—Universidad.
Seville.—Universidad de Sevilla. (To this university also belongs the Medical Faculty at Cadiz).
Valencia.—Universidad.
Valladolid.—Universidad.

SWEDEN

Lund.—Kungl. Karolinska Universitetet.
Stockholm.—Karolinska Institutet (Medico-Chirurgical Institute). (This institute has the same chancellor as the universities at Lund and Upsala, and is guided by a similar constitution.)
Upsala.—Kungl. Universitetet i Upsala.

SWITZERLAND

Basel.—Universität.
Berne.—Kantonale Universität.
Fribourg.—Universität.
Geneva.—Université de Genève.
Lausanne.—Université.
Neu-Chatel.—Universität.
Zurich.—Universität.

SYRIA

Beirut.—Syrian Protestant College.
Beirut.—Université Saint Joseph de Beyrouth.

TURKEY

Constantinople.—University of Constantinople. (Another medical department of this university is located at Damascus.)

URUGUAY

Montevideo.—Universidad.

WALES

Cardiff.—University of Wales (Cardiff School of Medicine).

MEDICAL COLLEGES OF THE WORLD

Nation.	Colleges.	Nation.	Colleges.
Argentine	2	India	3
Australia	5	Ireland	4
Austria	7	Italy	20
Belgium	4	Japan	8
Bolivia	2	Madagascar	1
Brazil	3	Malaya	1
Canada	8	Mexico	9
Chile	1	Netherlands	4
China	8	New Zealand	1
Colombia	1	Norway	1
Cuba	1	Peru	1
Denmark	1	Portugal	3
Ecuador	1	Roumania	2
Egypt	1	Russia	11
England	21	Scotland	8
France	7	Siam	1
Germany	20	Spain	9
Greece	1	Sweden	3
Guatemala	1	Switzerland	7
Haiti	1	Syria	2
Honduras	1	Turkey	1
Hungary	3	Uruguay	1
Iceland	1	Wales	1

Total medical colleges in all foreign countries..... 205
Total in the United States alone..... 116
There are also about 20 sectarian schools in the United States, the graduates of which treat diseases, giving this country a total of..... 136

MEDICAL STANDARDS ABROAD COMPARED

The list of foreign medical colleges, on the preceding pages, shows a total of 205 such colleges outside the United States, while this country alone has 136. All European medical schools are medical faculties of universities or are under the direct control of universities, and there are no proprietary or pseudomedical sectarian schools such as are permitted to exist in this country.

The information regarding preliminary education as well as collegiate and medical was obtained from original sources and from foreign publications and has been verified in most instances by the American consuls in the different countries.

The requirements in twenty-five foreign countries are graphically presented in the chart on page 636, where each division of education is shown according to the ages at which students are in attendance. The shaded portions of the bands represent primary and secondary education, the black portions the medical, and the white portions represent the requirements of higher preliminary education, including work in physics, chemistry and biology. The dotted portions, *a*, for Great Britain and Sweden, indicate the *average* length of time required to graduate in medicine. The chart allows valuable comparisons to be made and, as measured by years, shows more of a uniformity of educational standards than one would expect. It is interesting to note how sharply the line representing the age of 18 separates the secondary from higher education.

The age at the completion of the medical course in each country, as shown in the chart, with one or two exceptions, represents the lowest age at which the student can secure the right to practice medicine, disregarding the rare exceptions when the student graduates at an earlier age. The average age is one or two years higher than is shown in the chart, since the regular course of study between the ages of 6 and 24 is often broken by sickness, failure to receive promotion, or other causes.

In the majority of foreign countries secondary education begins from two to five years earlier than in this country and in some countries has no direct connection with the elementary. In fact, in several European countries, in Great Britain and in France, for example, it appears that the majority of students entering the secondary schools secure their elementary instruction from private tutors or in preparatory courses offered by the secondary schools, rather than in the regular elementary schools.

The United States and Japan are the only countries named in the chart which do not require preliminary work in

physics, chemistry and biology of every medical student. Even the South American countries are ahead of the United States in this respect. In some countries named the work is taken in the first one or two years of the medical course, along with the usual medical studies, while in others, notably in France, Belgium and Sweden, it must be taken in a college of science or philosophy. In still others, as in Austria and in Great Britain, the work may be taken either in a college of liberal arts or in the medical school. In France this work was given as a part of the regular medical course until 1893, when it was transferred to the college of science, because the laboratories and trained instructors in those colleges made it certain that the courses would be thoroughly taught.

Only one year devoted to the preliminary scientific studies is required by all but two of the countries named or else the work extends through about two years along with regular medical subjects. In no instance are more than two years of college work devoted entirely to preliminary study. This seems to indicate that the preliminary requirement by a few medical schools in this country of three and four years of college work has no parallel in other countries.

In six of the countries named, disregarding rare exceptions, the earliest age at which the right to practice medicine can be secured is 23. In three countries the age limit is 25 or beyond. But in the great majority the age limit is 24 and the entire course of elementary, secondary, college and medical education is completed in eighteen years. This agrees with the "ideal standard" adopted at Portland, Ore., in 1905, by the American Medical Association, as well as with the so-called six-year combined course for the degrees of B.S. and M.D., which is being generally adopted in this country.

The well-known diversity of standards of medical education in the United States at the present time is also shown in the chart. Preliminary standards range from a common school education up to the requirement of a college degree. Of the 120 colleges in the United States, 73 require a four-year high school education or less, as shown in Groups 1 to 4, 17 colleges require one year of college work and 30 colleges are now requiring two or more years of work in a college of arts, 44 of these having raised their requirements in the past seven years.

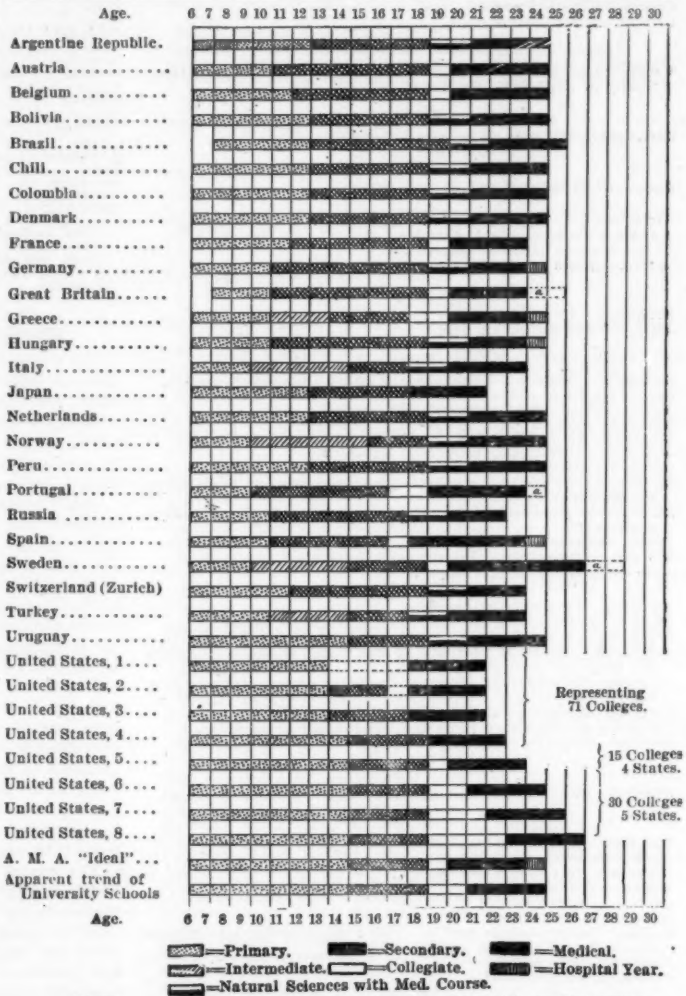
Colleges and States Having Higher Requirements

The thirty medical schools which are now requiring as a minimum for entrance two or more years of work in a college of liberal arts in addition to a four-year high-school education are as follows:

College	Began
Johns Hopkins University, Medical Department	1893
Harvard Medical School	1900
Western Reserve University, Medical Department	1901
University of Chicago, Rush Medical College	1904
University of California, Medical Department	1905
University of Minnesota, College of Medicine and Surgery	1907
University of North Dakota, College of Medicine*	1907
University of Wisconsin, College of Medicine	1907
Cornell University Medical College	1908
Wake Forest College, School of Medicine*	1908
Leland Stanford Junior University, Department of Medicine	1909
Yale Medical School	1909
University of Kansas, School of Medicine	1909
University of Michigan, College of Medicine	1909
University of Nebraska, College of Medicine	1909
University of South Dakota, College of Medicine*	1909
University of Colorado, School of Medicine	1910
Indiana University School of Medicine†	1910
State University of Iowa, College of Medicine†	1910
State University of Iowa, College of Homeopathic Medicine	1910
Drake University, College of Medicine	1910
University of Missouri, Department of Medicine*‡	1910
Dartmouth Medical School	1910
Columbia University College of Physicians and Surgeons	1910
Syracuse University College of Medicine†	1910
University of Pennsylvania, Medical Department†	1910
University of Utah, Medical Department*	1910
Northwestern University Medical School§	1911
Georgetown University School of Medicine	1912
Washington University, Medical Department	1912

* Offers only two years in medicine.
† One year required for the session of 1909-10.
‡ One year has been required since 1906.
§ One year required since the session of 1908-09.

CHART 1.—PRELIMINARY AND MEDICAL EDUCATION AT HOME AND ABROAD



a Shows average time required to complete the medical course.

The fifteen following colleges require, in addition to a four-year high-school course, one year of work in college physics, chemistry and biology:

College	In Force
Howard University School of Medicine	1910
Kansas Medical College	1910
Tulane University, Medical Department	1910
St. Louis University School of Medicine	1910
University of North Carolina School of Medicine*	1910
Ohio-Miami Medical College, University of Cincinnati†	1910
University of Oregon, Medical Department	1910
University of Texas, Medical Department	1910
University of Virginia, Department of Medicine	1910
Fordham University School of Medicine	1911
University of Pittsburgh, Medical Department	1911
Medical School of Maine	1912

University of Michigan, Homeopathic College..... 1912
University and Bellevue Hospital Medical College..... 1912
University of Vermont, College of Medicine..... 1912

* Offers only two years in medicine.
† Will require two years in 1913 and thereafter.

Higher Preliminary Requirements by State Boards

There are now nine state examining boards which have adopted preliminary requirements in advance of a four-year high-school education. These are as follows:

State Examining Board of	No. of Years Required.	Affects Students Matriculating.	Affects All Applicants.
North Dakota.....	2	1907-08	1911
South Dakota.....	1	1907-08	1911
Iowa	2	1907-08	1911
Minnesota	2	1908-09	1912
Colorado	1	1908-09	1912
Colorado	2	1910-11	1914
Connecticut	1	1910-11	1914
Kansas	1	1910-11	1914
Indiana	1	1909-10	1913
Indiana	2	1910-11	1914
Utah	1	1910-11	1914

Several other states are contemplating similar increases in their requirements in the near future.

STANDARDS OF THE COUNCIL ON MEDICAL EDUCATION OF THE AMERICAN MEDICAL ASSOCIATION

These standards were prepared by the Council on Medical Education acting under the direction of the House of Delegates of the American Medical Association.

Standard Now Recommended

The standard now recommended prerequisite to the practice of medicine is as follows:

(A) Preliminary education sufficient to enable the candidate to enter our recognized universities and in addition a course of one or two years devoted to the sciences of physics, chemistry and biology and to modern languages. These entrance qualifications are to be passed on by some competent authority not connected with the medical college. (B) Four years in pure medical work, the first two of which should be largely spent in laboratories of anatomy, physiology, pathology, pharmacology, etc., and the last two in close contact with patients in dispensaries and hospitals in the study of medicine, surgery, obstetrics and the specialties. (C) A final year as an intern in a hospital or dispensary should then complete the medical course.

Under such a scheme the majority of men would begin the study of medicine between 18 and 19 years of age, and would graduate from the hospital internship at from 24 to 25. A college education is recognized as a desirable preparation for a limited number of men, but it is thought that it is not desirable to make such college education a minimum requirement to the study of medicine; this would compel the young medical man to defer the actual beginning of his life's work to an unnecessarily late period—27 or 28 years of age.

An Acceptable Medical College

(Revised to July 31, 1912)

The following outline of the essentials of an acceptable medical college was issued by the Council on Medical Education of the American Medical Association for its suggestive value in the rapid development in progress among the medical colleges in the United States. It also represents the basis on which medical colleges are rated in the Council's classifications.

1. A strict enforcement of all standards and requirements, the college itself to be held responsible for any instances where they are not enforced.

2. A requirement for admission of at least a four-year high school education superimposed on eight years of grammar school work as defined by the College Entrance Examination Board (see schedule, next column).

3. Beginning Jan. 1, 1914, the minimum requirement for admission will be enlarged to include at least one year's college work in physics, chemistry and biology and a reading knowledge of at least one modern language besides English, preferably German or French.

4. A requirement that students be in actual attendance in the college within the first week of each annual session and thereafter.

5. That actual attendance at classes be insisted on except for good cause, such as for sickness, and that no credit be given under any circumstances for less than 80 per cent. of attendance on each course.

6. That advanced standing be granted only to students of other acceptable colleges and that in granting advanced standing there shall be no discrimination against the college's full-course student.

Standard High School Course

SCHEDULE OF SUBJECTS OFFERED IN ACADEMIC AND SECONDARY SCHOOLS, CREDITS IN WHICH ARE ACCEPTABLE FOR ENTRANCE TO MEDICAL COLLEGES

Based on the requirements of the College Entrance Examination Board.

SUBJECTS	UNITS.	REQUIRED.	ELECTIVE.
ENGLISH			
READING AND PRACTICE	2	2	...
Study and Practice	1	...	1
MATHEMATICS			
ALGEBRA TO QUADRATICS	1	1	...
ALGEBRA (Quadratic Equations, Binomial Theorem and Progressions)	½	...	½
PLANE GEOMETRY	1	1	...
Solid Geometry	½	...	½
Trigonometry	½	...	½
GRAMMAR AND COMPOSITION	1	1	...
LATIN			
CÆSAR	1	1	4
Cicero	1	...	1
Virgil	1	...	1
Cornelius Nepos	1	...	1
Greek			
Grammar and Composition	1	*	1
Xenophon	1	...	1
Homer	1	...	1
German			
Elementary	2	**	2
Intermediate	1	...	1
French			
Elementary	2	**	2
Intermediate	1	...	1
Spanish			
Elementary	2	**	2
HISTORY			
UNITED STATES HISTORY	1	1	...
Greek and Roman History	1	...	1
Medieval and Modern	1	...	1
English	1	...	1
SCIENCE †			
Botany and Zoology, each	½	...	½
or Biology	1	...	1
Chemistry	1	...	1
PHYSICS	1	1	...
Physiography	½	...	½
Physiology	½	...	½
Drawing	1	...	1
Music			
Appreciation	1	...	1
Harmony	1	...	1
Total	34	8	26

A *unit* is the credit value of 36 weeks' work of 5 recitation periods per week, each recitation period to be of not less than 40 minutes.

Required Branches: Of the 14 units of high school work it is suggested that the subjects in capitals aggregating 8 units should be required. Other work to the amount of at least 6 units may be made up from any of the other subjects of the above schedule.

* Two units of Greek may be substituted for the two required units of Latin.

** A reading knowledge of German, French or other modern language is recommended in the high school courses of students contemplating the study of medicine without higher preliminary qualifications.

† It should be understood that each science course must include laboratory work.

7. Careful and intelligent supervision of the entire school by a dean or other executive officer who holds, and has sufficient authority to carry out, fair ideals of medical education as interpreted by modern demands.

8. A good system of records showing conveniently the credentials, attendance, grades and accounts of the students.

9. A fully graded course covering four years of at least 30 weeks each, exclusive of holidays, and at least 30 hours per week of actual work; this course should be clearly set forth in a carefully prepared and printed schedule of lectures and classes.

10. Two years of work consisting largely of laboratory work in thoroughly equipped laboratories in anatomy, histology,

embryology, physiology, chemistry (inorganic, organic and physiologic), bacteriology, pathology, pharmacology, therapeutics and clinical diagnosis.

11. Two years of clinical work largely in hospitals and dispensaries, with thorough courses in internal medicine (including physical diagnosis, pediatrics, nervous and mental diseases), surgery (including surgical anatomy and operative surgery on the cadaver), obstetrics, gynecology, laryngology, rhinology, ophthalmology, otology, dermatology, hygiene and medical jurisprudence.

12. As soon as conditions warrant, a fifth undergraduate year should be required which should be spent by the student as an intern in an approved hospital.

13. At least six expert, thoroughly trained professors in the laboratory branches, salaried so they may devote their entire time to instruction and to that research without which they cannot well keep up with the rapid progress being made in their subjects. These professors should have a definite responsibility in the conduct of the college. There should also be a sufficient number of assistants in each department to look after the less important details. A suggested assignment of these instructors is (a) professor of anatomy, (b) professor of physiology, (c) professor of pathology and bacteriology and (d) professor of physiologic chemistry and pharmacology. The other two might be associate or assistant professors, and assigned one to the laboratory course in histology and embryology under the professor of anatomy and the other to the department of pathology and bacteriology.

14. The medical teaching should be of at least the same degree of excellence as obtains in our recognized liberal arts colleges and technical schools.

15 The members of the faculty, with a few allowable exceptions, should be graduates of institutions recognized as medical colleges and should have had a training in all departments of medicine. They should be appointed because of their ability as teachers and not because they happen to be on the attending staff of some hospital or for other like reasons.

16. The college should own or entirely control a hospital in order that students may come into close and extended contact with patients under the supervision of the attending staff. The hospital should have a sufficiently large number of patients to permit the student to see and study the common variety of surgical and medical cases as well as a fair number in each of the so-called specialties.

17. The college should have easily accessible hospital facilities of not less than 200 patients which can be utilized for clinical teaching (for senior classes of 100 students or less), these patients to represent in fair proportion all departments of medicine.

18. The college should have additional hospital facilities for children's diseases, contagious diseases and nervous and mental diseases.

19. Facilities for at least six maternity cases for each senior student, who should have actual charge of these cases under the supervision of the attending physician.

20. Facilities for at least 30 autopsies during each college session (for senior classes of 100 students or less).

21. A dispensary, or out-patient department, under the control of the college, the attendance to be a daily average of 60 cases (for senior classes of 100 students or less), the patients to be carefully classified, good histories and records of the patients to be kept and the material to be well used.

22. The college should have a working medical library to include the more modern text and reference books and 30 or more leading medical periodicals; the library room should be easily accessible to students during all or the greater part of the day; should have suitable tables and chairs and have a librarian in charge.

23. A working medical museum having its various anatomic, embryologic, pathologic and other specimens carefully prepared, labeled and indexed so that any specimen may be easily found and employed for teaching purposes. It is suggested that so far as possible with each pathologic specimen coming from post-mortems there also be kept the record of the post-mortem, the clinical history of the patient on whom the autopsy was held and microscopic slides showing the minute structures of the disease shown in the gross specimen.

24. A supply of such useful auxilary apparatus as a stereopticon, a reflectoscope, carefully prepared charts, embryologic or other models, manikins, dummies for use in bandaging, a Roentgen ray or other apparatus now so generally used in medical teaching.

25. The college should show evidences of reasonably modern methods in all departments and evidences that the equipment and facilities are *being intelligently used* in the training of medical students.

26. A clear statement of the college's requirements for admission, tuition, time of attendance on the classes, sessions and graduation should be clearly set forth, together with complete classified lists of its matriculants and latest graduating class in regular annual catalogues or announcements.

Definitions of a Medical College* and a Medical School†

"An institution to be ranked as a medical college must have at least six (6) professors giving their entire time to medical work, a graded course of four full years of college grade in medicine, and must require for admission not less than the usual four years of academic or high-school preparation, or its equivalent, in addition to the preacademic or grammar school studies."

By a medical school as differentiated from a medical college is meant a part of a university requiring for admission the equivalent of two years of collegiate work and which offers instruction of not less than two years' duration, leading to the degree of Doctor of Medicine.

Grading of Medical Colleges

In a similar manner as in the previous classifications, all medical colleges have recently been rated by the Council on Medical Education on a civil service basis on a scale of 1,000 points. The data relating to each college were grouped under ten general heads in such manner that the groups would have as nearly equal weight as possible, each group, allowing a possible 100 points (10 per cent.) out of a possible 1,000 points (100 per cent.). The ten heads under which the data were arranged are as follows:

1. Showing of graduates before state boards and other evidences of the training received.
2. Enforcement of a satisfactory preliminary educational requirement and the granting of advanced standing.
3. Character of curriculum, grading of course, length of session, time allowed for matriculation and supervision.
4. Medical school buildings; light, heat, ventilation, cleanliness.
5. Laboratory facilities and instruction.
6. Dispensary facilities and instruction.
7. Hospital facilities and instruction, maternity work, autopsies, specialties.
8. Faculty, number and qualifications of trained teachers, full-time instructors, and assistants, especially of the laboratory branches, and extent of research work.
9. Extent to which the school is conducted for properly teaching the science of medicine rather than for the profit of the faculty directly or indirectly.
10. Possession and use made of libraries, museums, charts, stereopticons, etc.

Colleges receiving a rating of 70 per cent or above in each and all of the ten divisions of data were included in Class A+; colleges receiving an average of 70 per cent. or above, but which receive a rating below 70 per cent. in one, two or three of the divisions were included in Class A; colleges receiving an average of between 50 and 70 per cent. and colleges having an average of above 70 per cent., but which received a rating below 70 per cent. in more than three of the divisions above named, were included in Class B, and colleges receiving less than 50 per cent. were included in Class C. In other words, Class A+ colleges are those which are acceptable; Class A those which need improvement in certain respects, but which are otherwise acceptable; Class B, those which, under their present organization, might be made acceptable by general improvements, and Class C, those which require a complete reorganization to make them acceptable.

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* This definition of a college is based on that given in the revised ordinances of the State of New York and which was adopted by the Carnegie Foundation for the Advancement of Teaching as a standard.

† Based on the definition of the term "school" adopted in 1909 by the Association of American Universities.

Colleges Listed in Classes A+ and A

1. Giving a complete four-year course:

ALABAMA
University of Alabama Medical Department.

CALIFORNIA
Leland Stanford Junior University Medical Department (Cooper Medical College).
University of California Medical Department, San Francisco-Los Angeles.

COLORADO
University of Colorado, School of Medicine.

CONNECTICUT
Yale Medical School.

DISTRICT OF COLUMBIA
George Washington University, Department of Medicine.

ILLINOIS
Northwestern University Medical School.
Rush Medical College, University of Chicago.
College of Physicians and Surgeons, Chicago.

INDIANA
Indiana University School of Medicine.

IOWA
State University of Iowa, College of Medicine.
Drake University, College of Medicine.

KENTUCKY
University of Louisville, Medical Department.

LOUISIANA
Tulane University of Louisiana, Medical Department.

MAINE
Medical School of Maine.

MARYLAND
Johns Hopkins University, Medical Department.

MASSACHUSETTS
Boston University, School of Medicine.
Harvard Medical School.
Tufts College Medical School.

MICHIGAN
University of Michigan, Department of Medicine and Surgery.
University of Michigan, Homeopathic College.

MINNESOTA
University of Minnesota, College of Medicine and Surgery.

MISSOURI
St. Louis University, School of Medicine.
Washington University, Medical Department.

NEBRASKA
University of Nebraska, College of Medicine.

NEW HAMPSHIRE
Dartmouth Medical School.

NEW YORK
Albany Medical College.
Columbia University, College of Physicians and Surgeons.
Cornell University Medical College.
Fordham University, School of Medicine.
New York Homeopathic Medical College and Hospital.
Syracuse University, Medical Department.
University and Bellevue Hospital Medical College.
University of Buffalo, Medical Department.

OHIO
Ohio-Miami Medical College, Medical Department, University of Cincinnati.
Starling-Ohio Medical College.
Western Reserve University, Medical Department.

OREGON
University of Oregon, Medical Department.

PENNSYLVANIA
Hahnemann Medical College and Hospital, Philadelphia.
Jefferson Medical College.
Medico-Chirurgical College of Philadelphia.
University of Pennsylvania, Medical Department.
Woman's Medical College of Pennsylvania.
University of Pittsburgh, Medical Department.

TENNESSEE
Vanderbilt University, Medical Department.

TEXAS
University of Texas, Medical Department.

VERMONT
University of Vermont, College of Medicine.

VIRGINIA
Medical College of Virginia.
University College of Medicine.
University of Virginia, Department of Medicine.

2. Giving a two-year course.

MISSISSIPPI
University of Mississippi, Medical Department.

MISSOURI
University of Missouri, Medical Department.

NORTH CAROLINA
University of North Carolina College of Medicine.
Wake Forest College, Medical School.

NORTH DAKOTA
University of North Dakota, College of Medicine.

SOUTH DAKOTA
University of South Dakota, College of Medicine.

UTAH
University of Utah, Department of Medicine.

WISCONSIN
University of Wisconsin, College of Medicine.

3. Medical Schools for the Colored Race:

Howard University, Medical Department, Washington, D. C.
Meharry Medical College, Nashville, Tenn.

THE ASSOCIATION OF AMERICAN MEDICAL COLLEGES

The requirements for admission to and graduation from colleges holding membership in this association are as follows:

SECTION 1.—Every college holding membership in this Association shall, on and after Jan. 1, 1912, require for matriculation a completed or unconditioned medical student's certificate, to be granted by a state medical examining and licensing board, or a board empowered by statute to grant such certificates, or a certificate of entrance to the academic department of any state university, or a certificate of entrance to an accredited university or college, providing that said certificate is granted on no less than the following requirements:

(*a*) A bachelor's degree from an accredited college or university.

(*b*) A diploma from an accredited high school, normal school or academy requiring for admission evidence of the completion of an eight-year course in primary and intermediate grades, and for graduation not less than four years of study embracing two years (4 points) of Latin, or four years (8 points) of either high school French or German or its full equivalent, provided a satisfactory examination is passed in the elements of Latin grammar; two years (4 points) of mathematics, two years (4 points) of English, one year (2 points) of history, one year (2 points) of physics, and six years (12 points) of further credit in language, literature, history or science.

(*c*) An examination in the following branches, totaling 30 points:

A. Required, 16 points.	Points
Mathematics—(Minimum, 2 years; maximum, 3 years)	4
Algebra and plain geometry.	
English—(Minimum, 2 years; maximum, 4 years)	4
(*a*) English grammar.	
(*b*) Rhetoric and composition.	
Latin—(Minimum, *see* (*b*); maximum, 4 years)	4
(*a*) Latin grammar.	
(*b*) Latin prose composition.	
(*c*) Reading four books of Cæsar or equivalent.	
Physics—(1 year). With laboratory work	2
History—(1 year). Including civics and political economy	2
Total required	16

B. Elective, 14 points.	Points
English Language and Literature (2 years). Only if taken after the required English	4
Language—German, French, Spanish or Greek (4 years); not less than one year in any one *see* (*b*)	2
Advanced Mathematics—Solid Geometry and Trigonometry (½ year each)	1
Natural Science (1 year). Biology, 1 year, or Botany and Zoology, ½ year each	2
Physical Science—(1 year). Chemistry	2
Earth Science—Physical Geography and Geology, ½ year each	1
Physiology and Hygiene—(½ year)	1
Astronomy—(½ year)	1
Drawing—(½ year)	1

One point in any subject demands one period per week of not less than 45 minutes, for 18 weeks.

Two points equal 5 counts, or 1 unit, or 2 credits.

If only 4 hours per week are given in a subject, the year's work represents 4 counts (the minimum), and must be counted as such and not as 5 counts (the maximum).

SEC. 2.—This examination must be conducted by or under the authority of the board of medical examiners of the state in which the college is located, or by a duly authorized examiner of the college entrance examination board, or the authorized examiner of an accredited university, state or otherwise, or by an examiner whose certificates are accepted by accredited colleges or universities, or by a method approved by the judicial council of this association.

SEC. 3.—The term "accredited" as applied to high schools, academies, colleges and universities means institutions of that type that have been investigated and are accredited by the state university of their respective states, by the North Central Association of Colleges and Secondary Schools, the Association of Colleges and Preparatory Schools of the Southern States, the Association of Colleges and Preparatory Schools of the Middle States and Maryland, the New England College Entrance Certificate Board, the Association of American Universities and the Association of State Universities, provided that such accrediting is based on Article III, Section 1, of this constitution.

SEC. 4.—Colleges in membership in this Association may honor the official credentials presented by students from other colleges having the standard requirements maintained by members of this Association, excepting for the fourth year of the course, but no member of this Association shall admit a student to advanced standing without receiving from the dean, secretary or registrar of such college a direct written communication certifying to the applicant's standing. Credit for time or scholarship cannot be given beyond that of the college issuing the credentials, except by mutual agreement between the colleges.

SEC. 5.—Candidates for the degree of Doctor of Medicine shall have attended four courses of study in four calendar years, each annual course to have been of not less than thirty-two teaching weeks' duration, and at least ten months shall intervene between the beginning of any course and the beginning of the preceding course.

SEC. 6.—No time credit shall be given to holders of a Bachelor's degree, but subject credit may be given on satisfactory examination. Four years of residence in a medical college shall be required of all candidates for the degree of Doctor of Medicine.

SEC. 7.—A college which gives less than a four years' course of study, but does not graduate students, and is possessed of other required qualifications, may be admitted to membership.

SEC. 8.—Each student shall be obliged to attend not less than 80 per cent. of the exercises in every annual course of study for which he seeks credit. No student shall be given credit on examination unless he attains a grade of at least 70 per cent. or its equivalent in any other marking system. And no student shall be graduated unless he shall have attained a passing grade in each and all subjects of the required curriculum.

TABLE 1.—STATISTICS OF MEDICAL COLLEGES IN THE UNITED STATES AND CANADA

Marginal Number.	NAME AND LOCATION OF COLLEGE.	Population of city where college is located. (Census of 1910.)	No. of students registered 1911-12.		Graduates 1912.		Grads with A.B., B.S., or Ph.B.	No. of teachers.	Weeks in college year.	Total fees. (Dollars.)				Executive Officer.	Session of 1912-13.		Marginal Number.
			Men.	Women.	Men.	Women.				1st year.	2nd year.	3rd year.	4th year.		Begins 1912.	Ends 1913.	
	ALABAMA		**320**	...	**66**	...	**7**	...	...	...	...	...	...				
1	Birmingham Medical College, Birmingham	132,685	183	...	31	...	1	40	31	105	105	105	130	E. P. Hogan, M.D., Secretary	Sept. 25	May 16	1
2	University of Alabama, School of Medicine, Mobile	51,521	137	...	35	...	6	57	32	135	135	135	160	E. D. Bondurant, M.D., Dean	Sept. 23	May 22	2
	ARKANSAS		**143**	**2**	**51**	**1**	**1**	...	...	...	...	...	...				
3	University of Arkansas, Medical Department, Little Rock	45,941	143	2	51	1	1	48	31	125	125	125	150	Morgan Smith, M.D., Dean	Sept. 16	May 9	3
	CALIFORNIA		**339**	**52**	**98**	**5**	**20**	...	...	...	...	...	...				
4	Cooper Medical College, San Francisco (a)	416,912	35	1	35	1	9	...	...	...	...	...	...		.....	.....	4
5	College of Physicians and Surgeons, San Francisco	416,912	15	1	3	...	...	39	35	165	160	160	185	Ethan H. Smith, M.D., Dean	Sept. 4	June 1	5
6	Hahnemann Medical College of the Pacific, San Francisco.—H.	416,912	32	3	4	...	...	35	35	155	100	100	100	James W. Ward, M.D., Dean	Aug. 1	April 20	6
7	Leland Stanford Junior Univ., Dept. of Med., San Francisco (a)	416,912	30	4	...	...	...	51	34	160	160	150	150	R. L. Wilbur, M.D., Dean	Aug. 26	May 14	7
8	Univ. of California, Med. Dept., San Francisco-Los Angeles (b)	416,912	78	10	25	2	11	133	36	200	195	190	165	Herbert C. Moffitt, M.D., Dean, San Francisco	Aug. 8	May 10	8
9	California Eclectic Medical College, Los Angeles.—E	319,198	23	5	4	...	...	30	36	125	120	100	125	J. A. Munk, M.D., Dean	Sept. 16	May 22	9
10	College of Physicians and Surgeons, Los Angeles	319,198	115	11	22	2	...	59	36	160	157	155	182	C. W. Bryson, M.D., Dean	Sept. 9	June 12	10
11	Oakland College of Medicine and Surgery, Oakland	150,174	18	4	6	...	...	34	36	200	200	175	175	Edward N. Ewer, M.D., Dean	Aug. 12	May 17	11
12	College of Medical Evangelists, Loma Linda	110	43	13	...	...	...	10	36	106	101	101	111	George K. Abbott, M.D., Dean	Sept. 26	June 25	12
	COLORADO		**110**	**8**	**33**	**1**	**4**	...	...	...	...	...	...				
13	University of Colorado, School of Medicine, Boulder-Denver	213,381	110	8	38	1	4	73	36	75	75	75	75	William P. Harlow, M.D., Dean	Sept. 9	June 5	13
	CONNECTICUT		**63**	...	**29**	...	**3**	...	...	...	...	...	...				
14	Yale Medical School, New Haven	133,605	63	...	29	...	3	70	35	220	168	150	168	George Blumer, M.D., Dean	Sept. 26	June 18	14
	DISTRICT OF COLUMBIA		**412**	**5**	**94**	**2**	**15**	...	...	...	...	...	...				
15	George Washington University, Dept. of Medicine, Washington	331,069	90	2	35	2	7	75	34	150	150	150	150	William C. Borden, M.D., Dean	Sept. 25	June 11	15
16	Georgetown University, School of Medicine, Washington	331,069	155	...	23	...	3	62	34	165	150	150	150	George M. Kober, M.D., Dean	Sept. 27	June 13	16
17	Howard University, School of Medicine, Washington	331,069	167	3	36	...	5	42	33	107	102	102	109	Edward A. Balloch, M.D., Dean	Sept. 25	June 4	17
	GEORGIA		**617**	**4**	**182**	**2**	**12**	...	...	...	...	...	...				
18	Atlanta College of Physicians and Surgeons, Atlanta	154,839	372	...	61	...	8	55	30	125	125	125	150	W. S. Elkin, M.D., Dean	Sept. 18	May 7	18
19	Atlanta School of Medicine, Atlanta	154,839	233	...	45	...	4	42	29	105	105	105	135	George H. Noble, M.D., Dean	Sept. 20	May 1	19
20	Georgia College of Eclectic Medicine and Surgery, Atlanta.—E	154,839	66	4	37	2	...	19	28	80	80	80	105	Elzie B. Thomas, M.D., Proctor	Sept. 20	April 13	20
21	Southern College of Medicine and Surgery, Atlanta (c)	154,839	20	...	11	...	...	13	...	70	70	70	90	E. O. Stuckey, M.D., Dean	.....	.....	21
22	University of Georgia, College of Medicine, Augusta	41,040	126	...	38	...	...	57	32	100	100	100	125	W. H. Doughty, Jr., M.D., Dean	Sept. 18	May 20	22
	ILLINOIS		**2302**	**160**	**530**	**28**	**141**	...	...	...	...	...	...				
23	Bennett Medical College, Chicago	2,185,283	389	13	91	2	...	93	34	135	130	125	130	William F. Waugh, M.D., Dean	Oct. 1	June 13	23
24	Chicago College of Medicine and Surgery, Chicago	2,185,283	529	27	122	4	7	124	31	120	120	105	120	G. E. Wyneken, M.D., Registrar	Sept. 24	May 19	24
25	College of Physicians and Surgeons, Chicago	2,185,283	470	36	131	14	10	128	32	155	155	150	160	William E. Quine, M.D., Dean	Oct. 1	June 6	25
26	Hahnemann Medical College and Hospital, Chicago.—H	2,185,283	98	6	33	...	3	76	32	125	125	155	175	W. Henry Wilson, M.D., Registrar	Sept. 25	May 23	26
27	Hering Medical College, Chicago.—H	2,185,283	26	2	6	1	1	53	33	100	100	100	100	E. B. Beckwith, M.D., Registrar	Sept. 24	June 5	27
28	Jenner Medical College, Chicago	2,185,283	125	13	10	2	...	48	38	145	140	120	155	John D. MacKellar, M.D., Secretary	Sept. 3	June 14	28
29	Northwestern University Medical School, Chicago	2,185,283	259	...	80	...	25	147	33	200	200	191	185	Arthur R. Edwards, M.D., Dean	Oct. 1	June 11	29
30	Rush Medical College, Chicago	2,185,283	496	63	107	5	95	246	34	185	180	180	195	John M. Dodson, M.D., Dean	Oct. 1	June 14	30
	INDIANA		**145**	**10**	**43**	**2**	**9**	...	...	...	...	...	...				
31	Indiana University, School of Medicine, Indianapolis	233,650	145	10	43	2	9	173	35	100	100	130	130	Charles P. Emerson, M.D., Dean	Sept. 24	June 18	31
	IOWA		**166**	**10**	**54**	**2**	**4**	...	...	...	...	...	...				
32	Drake University, College of Medicine, Des Moines	86,368	45	5	16	...	1	53	35	165	165	165	165	V. W. Pearson, M.D., Dean	Sept. 18	June 11	32
33	State University of Iowa, College of Medicine, Iowa City	10,091	106	4	32	2	2	43	36	60	50	50	60	James R. Guthrie, M.D., Dean, Dubuque	Sept. 16	June 13	33
34	State Univ. of Iowa, Coll. of Homeo. Med., Iowa City.—H. (d)	10,091	15	1	6	...	1	...	...	...	...	...	...		.....	.....	34
	KANSAS		**106**	**6**	**22**	**1**	**6**	...	...	...	...	...	...				
35	Kansas Medical College, Topeka	43,684	35	2	8	1	2	41	35	100	100	100	100	William E. McVey, M.D., Dean	Sept. 11	June 5	35
36	University of Kansas, School of Medicine, Kansas City	82,331	71	4	14	...	7	56	35	60	60	100	110	S. J. Crumbine, M.D., Dean, Topeka	Sept. 18	June 11	36
	KENTUCKY		**370**	...	**124**	...	...	...	...	...	...	...	...				
37	Louisville National Medical College, Louisville (e)	223,928	17	...	5	...	...	...	...	...	...	...	...		.....	.....	37
38	University of Louisville, Medical Department, Louisville	223,928	353	...	119	...	...	73	32	135	135	135	160	W. Edward Grant, M.D., Dean	Oct. 1	May 30	38
	LOUISIANA		**321**	...	**104**	...	**22**	...	...	...	...	...	...				
39	Tulane University Medical Department, New Orleans	339,075	321	...	104	...	22	96	32	180	180	180	210	Isadore Dyer, M.D., Dean	Sept. 30	June 4	39
	MAINE		**83**	...	**11**	...	**5**	...	...	...	...	...	...				
40	Medical School of Maine, Portland	58,571	83	...	11	...	5	60	38	120	115	105	105	Addison S. Thayer, M.D., Dean, Portland	Oct. 17	June 25	40

	MARYLAND		**1337**	**41**	**322**	**9**	**85**	...	...	...	...	...	...						
41	Baltimore Medical College, Baltimore	558,485	199	...	26	...	...	77	33	150	150	150	180	David Streett, M.D., Dean	Sept. 20	June 1	41
42	College of Physicians and Surgeons, Baltimore	558,485	321	...	63	...	...	66	32	165	165	165	195	William F. Lockwood, M.D., Dean	Oct. 1	June 5	42
43	Johns Hopkins University, Medical Department, Baltimore	558,485	326	31	79	6	85	118	33	200	200	200	200	J. Whitridge Williams, M.D., Dean	Oct. 1	June 1	43
44	Maryland Medical College, Baltimore	558,485	172	10	79	3	...	39	32	111	111	105	135	W. S. Smith, M.D., Dean	Oct. 1	June 1	44
45	University of Maryland, School of Medicine, Baltimore	558,485	319	...	75	...	...	62	32	155	155	155	185	R. Dorsey Coale, M.D., Dean	Oct. 1	June 1	45
	MASSACHUSETTS		**725**	**45**	**176**	**14**	**62**	...	...	...	...	...	...				
46	Boston University, School of Medicine.—H	670,585	78	16	12	6	...	74	32	142	130	128	125	John P. Sutherland, M.D., Dean	Oct. 3	June 4	46
47	College of Physicians and Surgeons, Boston	670,585	87	2	20	...	...	58	35	100	100	100	100	Thomas D. Crothers, M.D., Dean	Sept. 18	June 11	47
48	Harvard Medical School, Boston	670,585	258	...	61	...	58	193	35	234	208	200	200	Edward H. Bradford, M.D., Dean	Sept. 23	June 19	48
49	Tufts College Medical School, Boston	670,585	302	27	83	8	4	117	32	155	155	155	155	Frederic M. Briggs, M.D., Secretary	Sept. 25	June 1	49
	MICHIGAN		**501**	**26**	**141**	**8**	**31**	...	...	...	...	...	...				
50	Detroit College of Medicine, Detroit	465,766	172	...	38	...	1	124	34	115	120	100	130	F. B. Walker, M.D., Registrar	Sept. 25	May 29	50
51	Detroit Homeopathic College, Detroit.—H. (f)	465,766	18	4	4	1	...	...	...	...	...	...	...	.....	.....	.....	51
52	University of Michigan, Dept. of Med. and Surg., Ann Arbor (g)	14,817	227	15	76	6	26	84	35	101	80	105	55	Victor C. Vaughan, M.D., Dean	Oct. 1	June 26	52
53	University of Michigan, Homeopathic College, Ann Arbor.—H. (g)	14,817	84	7	23	1	4	21	35	101	80	105	55	W. B. Hinsdale, M.D., Dean	Oct. 1	June 26	53
	MINNESOTA		**173**	**10**	**36**	**1**	**23**	...	...	...	...	...	...				
54	University of Minnesota, Coll. of Med. and Surg., Minneapolis	301,408	173	10	36	1	23	157	35	150	150	100	100	F. F. Wesbrook, M.D., Dean	Sept. 18	June 13	54
	MISSISSIPPI		**102**	**1**	**14**	...	...	...	...	...	...	...	...				
55	University of Mississippi, Medical Department, Oxford*	2,014	44	...	...	...	...	14	33	100	100	...	...	W. S. Leathers, M.D., Dean	Sept. 19	June 8	55
56	Mississippi Medical College, Meridian (f)	23,285	58	1	14	...	...	...	...	...	...	...	...	.....	.....	.....	56
	MISSOURI		**809**	**25**	**216**	**7**	**27**	...	...	...	...	...	...				
57	University of Missouri, School of Medicine, Columbia*	9,662	36	...	...	...	...	16	35	70	70	...	...	C. M. Jackson, M.D., Dean	Sept. 19	June 11	57
58	Kansas City Hahnemann Medical College, Kansas City.—H	248,381	36	5	7	3	...	49	33	125	125	125	125	Moses T. Runnels, M.D., Dean	Sept. 2	May 12	58
59	University Medical College, Kansas City†	248,381	70	...	27	...	1	83	36	...	...	100	125	S. Grover Burnett, M.D., Dean	Sept. 9	June 9	59
60	Eclectic Medical University, Kansas City	248,381	48	2	12	...	...	39	34	100	100	100	100	D. R. Alexander, M.D., Secretary	Sept. 4	May 19	60
61	Ensworth Medical College, St. Joseph	687,029	156	16	40	4	4	30	34	130	125	125	130	T. E. Potter, M.D., Secretary	Sept. 20	May 20	61
62	American Medical College, St. Louis	687,029	271	...	70	...	12	109	34	120	120	120	120	Elias P. Lyon, M.D., Dean	Sept. 10	June 1	62
63	St. Louis University, School of Medicine	687,029	26	2	11	...	2	46	32	110	105	100	95	Walter U. Kennedy, M.D., Dean	Oct. 1	June 16	63
64	St. Louis College of Physicians and Surgeons	687,029	109	...	44	...	8	74	34	155	150	150	155	Eugene L. Opie, M.D., Dean	Sept. 15	May 17	64
65	Washington University Medical School, St. Louis														Sept. 30	June 12	65
	NEBRASKA		**275**	**15**	**62**	**5**	**12**	...	...	...	...	...	...				
66	John A. Creighton Medical College, Omaha	124,096	187	7	47	4	6	48	32	105	100	100	105	D. C. Bryant, M.D., Dean	Sept. 1	April 28	66
67	University of Nebraska, College of Medicine, Lincoln and Omaha	124,096	64	6	9	0	5	60	35	111	100	100	105	Robert H. Wolcott, M.D., Dean, Lincoln	Sept. 10	May 30	67
68	Cotner Medical College.—E. (h)	43,973	24	2	6	1	1	36	34	100	100	100	100	R. H. Spradling, M.D., Dean	Sept. 16	May 29	68
	NEW HAMPSHIRE		**36**	...	**9**	...	**2**	...	...	...	...	...	...		Aug. 6; Sept. 19	April 22; June 21	
69	Dartmouth Medical School, Hanover	2,075	36	...	9	...	2	28	34	145	147	125	125	J. M. Gile, M.D., Dean			69
	NEW YORK		**2161**	**65**	**421**	**8**	**82**	...	...	...	...	...	...				
70	Albany Medical College, Albany	100,253	223	...	43	...	3	100	31	130	145	120	130	Willis G. Tucker, M.D., Registrar	Sept. 18	May 18	70
71	Columbia University, College of Phys. and Surgs., New York	4,766,883	347	...	86	...	53	219	33	255	250	250	275	Samuel W. Lambert, M.D., Dean	Sept. 25	June 4	71
72	Cornell University Medical College, New York City	4,766,883	71	14	9	2	11	153	36	190	185	185	200	J. S. Ferguson, M.D., Secretary	Oct. 2	June 12	72
73	Eclectic Medical College of the City of New York.—E	4,766,883	39	6	11	0	1	53	32	164	164	150	150	Samuel A. Hardy, M.D., Dean	Sept. 11	May 14	73
74	Fordham University School of Medicine, New York City	4,766,883	118	...	24	...	3	92	34	200	200	200	200	James J. Walsh, M.D., Dean	Sept. 27	June 12	74
75	Long Island College Hospital, New York City	4,766,883	412	...	72	...	2	106	32	205	200	180	200	Joseph H. Raymond, M.D., Dean	Sept. 27	June 2	75
76	New York Homeopathic Medical College and Hospital.—H	4,766,883	170	...	27	...	...	85	31	165	160	150	180	Royal S. Copeland, M.D., Dean	Oct. 2	May 28	76
77	New York Medical College and Hospital for Women.—H	4,766,883	...	31	...	2	2	50	31	155	150	135	155	Helen Cooley Palmer, M.D., Dean	Sept. 30	May 24	77
78	University and Bellevue Hospital Medical College, New York	4,766,883	476	...	80	...	2	179	32	200	200	200	200	Egbert Le Fevre, M.D., Dean	Oct. 1	June 4	78
79	Syracuse University, College of Medicine, Syracuse	137,249	86	5	29	4	3	65	33	191	191	151	166	John L. Heffron, M.D., Dean	Oct. 1	June 11	79
80	University of Buffalo, Medical Department, Buffalo	423,715	219	9	40	0	2	80	33	185	180	140	140	Herbert U. Williams, M.D., Dean	Sept. 23	May 30	80
	NORTH CAROLINA		**312**	**2**	**53**	**1**	**7**	...	...	...	...	...	...				
81	Leonard Medical School, Raleigh	19,218	121	...	30	...	5	14	30	57	57	57	57	William Moncure, M.D., Dean	Oct. 2	May 15	81
82	University of North Carolina, Medical Department, Chapel Hill	1,149	54	...	...	...	...	27	35	115	116	...	...	Isaac Hall Manning, M.D., Dean	Sept. 9	June 3	82
83	North Carolina Medical College, Charlotte	34,014	98	2	23	1	2	45	31	107	102	100	130	W. O. Nisbet, M.D., Dean	Sept. 11	May 5	83
84	Wake Forest School of Medicine, Wake Forest	1,443	39	...	...	...	...	14	35	102	102	...	...	William Louis Poteat, President	Sept. 3	May 23	84
	NORTH DAKOTA		**12**	**1**	...	...	...	...	...	...	...	...	...				
85	University of North Dakota, Med. Dept., University-Grand Forks	12,478	12	1	...	...	...	10	34	50	50	...	...	Harley E. French, M.D., Dean	Sept. 24	June 13	85
	OHIO		**725**	**27**	**198**	**6**	**51**	...	...	...	...	...	...				
86	Cleveland College of Physicians and Surgeons, Cleveland (i)	560,663	39	2	13	2	...	...	...	...	...	...	...	.....	.....	.....	86
87	Cleveland-Pulte Medical College, Cleveland.—H	560,663	69	10	12	2	...	58	33	125	125	125	125	George H. Quay, M.D., Dean	Oct. 1	June 12	87
88	Western Reserve University Medical Department, Cleveland	560,663	135	...	35	...	29	89	34	142	135	135	135	F. C. Waite, M.D., Secretary	Oct. 1	June 12	88
89	Eclectic Medical College, Cincinnati.—E	363,591	84	5	19	0	2	31	30	100	100	100	100	John W. Scudder, Secretary	Sept. 16	May 6	89
90	Ohio-Miami Medical College of the University of Cincinnati	363,591	109	4	55	1	13	111	34	130	125	125	150	Paul G. Woolley, M.D., Dean	Oct. 1	June 14	90
91	Starling-Ohio Medical College, Columbus	181,511	250	6	53	1	7	80	32	150	135	135	135	William J. Means, M.D., Dean	Sept. 25	May 28	91
92	Toledo Medical College, Toledo	168,497	39	...	9	...	...	49	32	137	132	125	125	L. A. Brewer, M.D., Dean	Oct. 1	May 24	92
	OKLAHOMA		**47**	**4**	**9**	**1**	...	...	...	...	...	...	...				
93	Univ. of Oklahoma, School of Med., Norman and Oklahoma City	64,205	47	4	9	1	...	43	34	55	28	100	105	Robt. F. Williams, M.D., Dean	Sept. 26	June 12	93
	OREGON		**120**	**7**	**29**	...	**3**	...	...	...	...	...	...				
94	University of Oregon, Medical Department, Portland	207,214	61	6	17	0	2	46	32	142	138	107	58	K. A. J. Mackenzie, M.D., Dean	Oct. 1	June 1	94
95	Willamette University, Medical Department, Salem	14,094	59	1	12	0	1	18	32	123	110	88	58	W. H. Byrd, M.D., Dean	Oct. 1	June 1	95

TABLE 1.—STATISTICS OF MEDICAL COLLEGES IN THE UNITED STATES AND CANADA.—(*Concluded.*)

Marginal Number.	NAME AND LOCATION OF COLLEGE.	Population of city where college is located. (Census of 1910.)	No. of students registered 1911-12.		Graduates 1912.		Grads. with A.B., B.S., or Ph.B.	No. of teachers.	Weeks in college year.	Total fees. (Dollars.)				Executive Officer.	Session of 1912-13.		Marginal Number.
			Men.	Women.	Men.	Women.				1st year.	2nd year.	3rd year.	4th year.		Begins 1912.	Ends 1913.	
	PENNSYLVANIA		1686	121	472	34	69	...	...	...	...	...	...				
96	Hahnemann Medical College and Hospital, Philadelphia.—H	1,549,008	116	...	35	...	1	30	34	175	175	172	170	William B. Van Lennep, M.D., Dean	Sept. 22	June 5	96
97	Jefferson Medical College, Philadelphia	1,549,008	616	...	148	...	...	134	34	186	182	181	180	Ross V. Patterson, M.D., Sub-Dean	Sept. 23	June 7	97
98	Medico-Chirurgical College of Philadelphia	1,549,008	341	...	77	...	8	102	34	163	159	155	153	Seneca Egbert, M.D., Dean	Sept. 23	June 6	98
99	Temple University, Medical Department, Philadelphia	1,549,008	73	8	22	3	4	92	34	150	150	150	150	Frank C. Hammond, M.D., Dean	Sept. 16	June 5	99
100	University of Pennsylvania, Department of Medicine, Philadelphia	1,549,008	307	...	124	...	43	166	35	218	213	210	212	William Pepper, M.D., Dean	Sept. 27	June 18	100
101	Woman's Medical College of Pennsylvania, Philadelphia	1,549,008	...	113	...	30	7	52	34	161	156	154	153	Clara Marshall, M.D., Dean	Sept. 18	June 4	101
102	University of Pittsburgh, Medical Department, Pittsburgh	533,905	173	1	66	1	2	103	35	220	220	220	220	Thomas S. Arbuthnot, M.D., Dean	Sept. 30	June 25	102
	SOUTH CAROLINA		163	1	64	1	13	...	...	...	...	...	...				
103	Medical College of South Carolina, Charleston	58,833	163	1	64	1	13	42	32	100	100	100	100	Robert Wilson, Jr., M.D., Dean	Oct. 1	June 2	103
	SOUTH DAKOTA		9	...	...	...	...	...	...	...	...	...	...				
104	University of South Dakota, College of Medicine, Vermilion	2,187	9	...	...	...	...	9	35	60	60	...	...	Christian P. Lommen, B.S., Dean	Sept. 17	June 12	104
	TENNESSEE		1327	8	320	2	24	...	...	...	...	...	...				
105	Lincoln Memorial University Medical Department, Knoxville	36,346	95	2	24	1	1	30	29	105	100	100	125	S. D. Acuff, M.D., Registrar	Oct. 1	May 11	105
106	Meharry Medical College, Nashville	110,364	331	4	69	1	12	26	30	60	60	60	75	G. W. Hubbard, M.D., Dean	Sept. 11	April 21	106
107	Vanderbilt University, Medical Department, Nashville	110,364	392	...	66	...	6	65	32	130	130	180	155	Lucius E. Burch, M.D., Secretary	Sept. 19	May 20	107
108	University of Tennessee, College of Medicine, Memphis	131,105	158	2	48	0	1	58	30	125	125	125	150	Edward C. Ellett, M.D., Dean	Sept. 25	May 16	108
109	Memphis Hospital Medical College, Memphis	131,105	319	...	104	...	3	40	30	125	125	125	150	W. B. Rogers, M.D., Dean	Oct. 1	May 16	109
110	University of West Tennessee, Medical Department, Memphis	131,105	37	...	9	...	1	18	30	55	55	55	65	M. V. Lynk, M.D., Dean	Sept. 16	May 1	110
	TEXAS		345	18	96	1	9	...	...	...	...	...	...				
111	Fort Worth School of Medicine, Forth Worth	73,312	71	...	17	...	...	49	30	114	113	108	125	W. R. Thompson, M.D., Dean	Sept. 30	May 15	111
112	University of Texas, Department of Medicine, Galveston	36,981	146	16	45	1	6	28	32	61	31	21	6	W. S. Carter, M.D., Dean	Oct. 1	May 31	112
113	Baylor University, College of Medicine, Dallas	92,104	126	2	20	...	2	34	32	110	105	100	125	Edward H. Cary, M.D., Dean	Oct. 1	June 1	113
114	Southern Methodist University, Medical Department, Dallas (j)	92,104	62	...	14	...	1	30	32	110	105	100	125	John O. McReynolds, M.D., Dean	Oct. 1	May 30	114
	UTAH		12	...	...	...	...	...	...	...	...	...	...				
115	University of Utah, School of Medicine, Salt Lake City	92,777	12	...	...	...	...	11	34	55	55	...	...	Charles T. Vorhies, M.D., Dean	Sept. 16	May 31	115
	VERMONT		176	...	47	...	1	...	...	...	...	...	...				
116	University of Vermont, College of Medicine, Burlington	20,468	176	...	47	...	1	48	36	135	135	135	160	H. C. Tinkham, M.D., Dean	Sept. 25	June 25	116
	VIRGINIA		484	...	99	...	11	...	...	...	...	...	...				
117	Medical College of Virginia, Richmond	127,628	242	...	43	...	...	67	34	100	100	100	130	Christopher Tompkins, M.D., Dean	Sept. 17	June 3	117
118	University College of Medicine, Richmond	127,628	160	...	35	...	3	68	33	104	104	104	134	Alfred L. Gray, M.D., Dean	Sept. 18	May 29	118
119	University of Virginia, Department of Medicine, Charlottesville	6,765	82	...	12	...	8	32	36	140	140	140	140	R. H. Whitehead, M.D., Dean	Sept. 12	June 14	119
	WEST VIRGINIA		19	...	...	...	...	...	...	...	...	...	...				
120	West Virginia University School of Medicine, Morgantown (k)	9,150	19	...	...	...	...	9	36	50	50	...	...	John N. Simpson, M.D., Dean	Sept. 16	June 15	120
	WISCONSIN		340	6	80	...	3	...	...	...	...	...	...				
121	Milwaukee Medical College	373,857	239	3	48	0	3	70	32	135	135	138	155	Warren B. Hill, M.D., Dean	Oct. 1	June 2	121
122	Wisconsin College of Physicians and Surgeons, Milwaukee	373,857	48	...	12	...	...	50	32	145	140	135	150	T. C. Phillips, M.D., Dean	Sept. 30	May 30	122
123	University of Wisconsin, College of Medicine, Madison (g)	25,531	53	2	...	...	...	17	35	130	130	...	...	Charles R. Bardeen, M.D., Dean	Sept. 30	June 22	123
	PHILIPPINE ISLANDS		53	4	8	1	1	...	...	...	...	...	...				
124	University of the Philippines Coll. of Med. and Surg., Manila (l)	234,409	53	4	8	1	1	53	36	...	...	...	...	William E. Musgrave, M.D., Dean	July 1	April 1	124
	CANADA		1563	21	261	2	57	...	...	...	...	...	...				
125	Dalhousie University, Faculty of Medicine, Halifax, N. S.	46,619	63	3	10	0	...	29	32	75	75	100	100	A. W. H. Lindsay, M.D., Dean	Aug. 29	April 24	125
126	Queen's University, Faculty of Medicine, Kingston, Ont.	18,874	249	...	52	...	12	30	30	105	105	105	105	J. C. Connell, M.D., Dean	Sept. 12	April 30	126
127	Western University, Faculty of Medicine, London, Ont.	46,300	125	...	38	...	...	18	30	100	100	100	100	W. E. Waugh, M.D., Registrar	Sept. 16	May 1	127
128	McGill University, Medical Faculty, Montreal, Que.	470,480	320	...	46	...	15	115	33	160	160	150	154	John W. Scane, M.D., Registrar	Sept. 30	June 6	128
129	Montreal School of Medicine and Surgery, Montreal, Que.	470,480	162	...	34	...	...	60	34	110	118	126	138	E. P. Lachapelle, M.D., Dean	Oct. 1	June 30	129
130	Laval University, Medical Faculty, Quebec, Que.	78,190	72	...	10	...	9	24	34	60	60	60	60	Michael J. Ahern, M.D., Dean, Quebec	Sept. 10	June 1	130
131	University of Toronto, Medical Faculty, Toronto, Ont.	376,538	458	15	51	2	19	64	33	150	150	150	150	A. Primrose, M.D., Secretary	Oct. 1	June 6	131
132	University of Manitoba, Manitoba Medical College, Winnipeg	136,035	129	3	19	...	2	30	28	155	150	150	150	H. H. Chown, M.D., Dean	Oct. 1	May 1	132

H., Homeopathic; E., Eclectic; * Gives only the first two yea rs of the medical course; † Gives only the last two years of the medical course.

REFERENCES TO TABLE 1.

(a) Cooper Medical College, which was taken over by Leland Stanford Junior University in 1908, goes out of existence with the graduation of this class. Hereafter Leland Stanford Junior University will teach all four years of the medical course.

(b) The University of California gives the first two years of the medical course at Berkeley and the student may take his clinical years either at Los Angeles or at San Francisco.

(c) This school has been reported as "not in good standing" by the Georgia State Board of Medical Examiners.

(d) All courses in this school have been consolidated with those of the College of Medicine of the State University of Iowa, excepting the two chairs in (a) materia medica and therapeutics and (b) practice.

(e) Suspended following withdrawal of recognition by the Kentucky State Board of Health.

(f) This college has voluntarily become extinct.

(g) Fees given are for non-residents; rates are lower for residents of the state.

(h) Formerly known as the Lincoln Medical College.

(i) This college was merged with Western Reserve University in 1910 but will continue to exist until all students then enrolled shall have graduated.

(j) Name of this school recently changed; was formerly known as the Southwestern University, Medical Department.

(k) Last year this institution was closed as a "college" but was later restored as a "school." It is stated there was no intention of discontinuing medical teaching.

(l) Supported by the Philippine Government; no tuition fees charged.

CURRICULUM

SECTION 1.—The entire course of four years shall consist of at least 4,000 hours for each student, and shall be grouped in divisions and subdivided into subjects; each division and subject to be allotted the number of hours as shown in the following schedule:

DIVISION 1.—ANATOMY, 710 Hours (18 Per Cent.)

	Hours.	Lect. Rec. Dem.	Lab. Wk.
(a) Gross anatomy (including applied anatomy)	510	120	390
(b) Histologic and microscopic anatomy	135	30	105
(c) Embryology	75	30	45

DIVISION 2.—PHYSIOLOGY AND CHEMISTRY, 600 Hours (15 Per Cent.)

	Hours.	Lect. Rec. Dem.	Lab. Wk.
(a) Inorganic chemistry	180	60	120
(b) Organic chemistry	75	30	45
(c) Physiologic chemistry	104	30	75
(d) Physiology	240	140	100

DIVISION 3.—PATHOLOGY, BACTERIOLOGY AND HYGIENE, 450 Hours (11.25 Per Cent.)

	Hours.	Lect. Rec. Dem.	Lab. Wk.
(a) Bacteriology	135	30	105
(b) Hygiene and general dietetics	45	45	...
(c) Pathology	270	60	210

DIVISION 4.—PHARMACOLOGY, MATERIA MEDICA AND THERAPEUTICS, 240 Hours (6 Per Cent.)

	Hours.	Lect. Rec. Dem.	Lab. Wk.
(a) Pharmacology	105	40	65
(b) Materia medica and pharmacology	80	...	...
(c) Therapeutics	55	...	...

DIVISION 5.—MEDICINE AND MEDICAL SPECIALTIES, 970 Hours (24.25 Per Cent.)

	Hours.	Lect. Rec. Dem.	Lab. Wk.
(a) General medicine (including clinical microscopy)	640	...	...
(b) Pediatrics	150	...	...
(c) Nervous and mental diseases	105	...	...
(d) Jurisprudence, ethics and economics	30	...	...
(e) Dermatology and syphilis	45	...	...

DIVISION 6.—SURGERY AND SURGICAL SPECIALTIES, 720 Hours (18 Per Cent.)

	Hours.	Lect. Rec. Dem.	Lab. Wk.
(a) General surgery	510	...	...
(b) Orthopedic surgery	45	...	...
(c) Genito-urinary diseases	45	...	...
(d) Eye	60	...	...
(e) Ear, nose and throat	60	...	...

DIVISION 7.—OBSTETRICS AND GYNECOLOGY, 300 Hours (7.5 Per Cent.)

	Hours.	Lect. Rec. Dem.	Lab. Wk.
(a) Obstetrics	195	...	...
(b) Gynecology (including some abdominal surgery)	105	...	...

Colleges may reduce the number of hours in any subject not more than 20 per cent. provided that the total number of hours in a division is not reduced. Where the teaching conditions in a college are best subserved, the subject may be, for teaching purposes, transferred from one division to another. When didactic and laboratory hours are specified in any subject, laboratory hours may be substituted for didactic hours.

SEC. 2.—Each medical college in membership in the Association shall print in every annual catalogue or announcement a table of the total number of hours work given in said college, arranged both by subjects and years.

SEC. 3.—Each college in membership in this Association shall print annually a list of its students by classes.

MEMBERS OF ASSOCIATION

Leland Stanford Junior University, Department of Medicine.
University of California, Medical Department.
University of Southern California Medical Department.
University of Colorado, School of Medicine.
Yale Medical School.
Georgetown University, School of Medicine.
George Washington University, Department of Medicine.
Howard University, Medical Department.
Northwestern University Medical School.
University of Illinois, College of Medicine.
Indiana University, School of Medicine.
Drake University, College of Medicine.
State University of Iowa, College of Medicine.
Washburn College, Medical Department.
University of Kansas, School of Medicine.
University of Louisville, Medical Department.
Medical Department of Tulane University.
Baltimore Medical College.
College of Physicians and Surgeons, Baltimore.
Johns Hopkins University, Medical Department.
University of Maryland, School of Medicine.
Medical School of Harvard University.
Tufts College Medical School.
Detroit College of Medicine.
University of Michigan, Department of Medicine and Surgery.
University of Minnesota College of Medicine and Surgery.
University of Mississippi, Medical Department.
St. Louis University, School of Medicine.
University Medical College.
University of Missouri, School of Medicine.
Washington University, Medical Department.
John A. Creighton Medical College, Medical Department.
University of Nebraska, College of Medicine.
Cornell University Medical College.
Syracuse University, College of Medicine.
University and Bellevue Hospital Medical College.
University of Buffalo, Medical Department.
University of North Carolina, Department of Medicine.
Wake Forest College, School of Medicine.
University of North Dakota, College of Medicine.
Ohio-Miami Medical College of the University of Cincinnati.
Starling-Ohio Medical College.
Western Reserve University, Medical Department.
State University of Oklahoma, School of Medicine.
University of Pennsylvania, Medical Department.
Meharry Medical College.
Vanderbilt University, Medical Department.
University of Vermont, College of Medicine.
Medical College of Virginia.
University College of Medicine.
University of Wisconsin, College of Medicine.

The secretary-treasurer of the Association is Dr. Fred C. Zapffe, 3431 Lexington Street, Chicago.

COLLEGE NOTES

Colleges Closed During the Year.—Seven medical colleges have been closed during the year. Four were closed by merger into other medical schools and three became extinct. The colleges are:

Cooper Medical College, San Francisco. The last class was graduated this year and the final step of the transfer of the property to the Leland Stanford Junior University, Medical Department, has been consummated.

Hospital College of Medicine, Eclectic, Atlanta, Ga., merged into the Georgia College of Eclectic Medicine and Surgery.

State University of Iowa, College of Homeopathic Medicine, Iowa City. All chairs excepting the two relating to homeopathic materia medica, therapeutics and practice have been merged with those of the College of Medicine.

Louisville National Medical College, Colored, Louisville, Ky. Became extinct following the withdrawal of recognition by the Kentucky State Board of Health.

Detroit Homeopathic College, Detroit, Mich. Voluntarily became extinct.

Mississippi Medical College, Meridian, Miss. Voluntarily became extinct.

Barnes Medical College, St. Louis, Mo. Merged with the American Medical College, retaining the latter name.

New and Revived Colleges.—One new college, the Southern College of Medicine and Surgery, Atlanta, Ga., was organized during the year. Two other colleges reported to have suspended have been revived. These are the University Medical College of Kansas City, Mo., and the School of Medicine of West Virginia University. There has been a net reduction during the year of four colleges, the total now being 116.

Endowments, New Medical Buildings, Etc.

Alabama.—During the year the Medical College of Alabama, Mobile, spent $5,000 for an addition to the laboratory and dispensary building. The Mobile City Hospital is to be remodeled and enlarged at a cost of about $50,000.

California.—The College of Medical Evangelists, Loma Linda, completed its new laboratory building and received about $8,000 toward the erection of a teaching hospital and for other purposes.

—The delegates of the College of Medical Evangelists, in conference at Loma Linda, March 30, 1912, voted $125,000 for improvements during the coming year. About $40,000 of this is to be spent for the beginning of a teaching hospital.

—Leland Stanford Junior University Department of Medicine, San Francisco, has just completed a new building for the Lane Medical Library at the expense of about $140,000. A gift of $10,000 for this library was received from Dr. Adolph Barkan for a special library on the diseases of the eye, ear, nose and throat. Another gift of $5,000 for the library was received from Mr. Charles G. Stanford. The Nurses' Home is being remodeled. The school has received an additional sum of $63,750 for endowments.

Connecticut.—Yale Medical School received $15,000 from an anonymous donor, to be added to the fund for the support of the university clinic.

District of Columbia.—Howard University, School of Medicine, Washington, has received $10,000 during the year for additional laboratory supplies and equipment.

Number.	NAME OF COLLEGE	1 Alabama.....409	2 Arizona.....9	3 Arkansas.....251	4 California.....341	5 Colorado.....138	6 Connecticut...231	7 Delaware.....32	8 Dist. of Col...122	9 Florida.....158	10 Georgia.....749	11 Idaho.....35	12 Illinois.....1308	13 Indiana.....464	14 Iowa.....404	15 Kansas.....317	16 Kentucky.....293	17 Louisiana.....288	18 Maine.....180	19 Maryland.....311	20 Massachusetts.713	Number.
1	Birmingham Medical College, Birmingham	157	....	1	....	....	....	....	....	3	3	....	....	....	....	....	1	4	....	....	....	1
2	University of Alabama, Medical Dept., Mobile	124	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....	2	....	....	....	2
3	University of Arkansas, Med. Dept., Little Rock	....	....	118	1	....	....	....	....	....	....	....	1	....	....	4	1	2	....	....	....	3
4	College of Phys. and Surgs., San Francisco	....	....	....	7	....	....	....	....	....	....	....	....	1	....	1	....	....	....	....	1	4
5	Hahnemann Medical College of the Pacific.—H	....	....	....	35	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	5
6	Leland Stanford Junior University, Dept. of Med	....	....	....	57	....	....	....	....	....	....	....	....	1	1	....	....	....	....	....	....	6
7	Univ. of California, Med. Dept., San Fran.-L. A	....	....	....	82	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....	7
8	California Eclectic Medical Coll., Los Angeles.—E	....	....	....	23	....	....	....	....	....	1	....	....	1	....	....	....	....	....	....	....	8
9	College of Physicians and Surgeons, Los Angeles	....	1	....	21	1	2	....	1	....	....	....	8	4	15	3	2	....	....	....	4	9
10	Oakland Coll. of Medicine and Surgery, Oakland	....	....	....	19	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	10
11	College of Medical Evangelists, Loma Linda	....	....	....	12	1	....	....	2	....	....	....	1	1	1	1	....	1	....	....	....	11
12	Univ. of Colorado, School of Med., Boulder-Denver	....	....	....	1	81	1	....	....	1	1	4	1	4	3	1	....	1	....	....	....	12
13	Yale Medical School, New Haven	....	....	....	....	....	39	....	....	....	....	....	1	....	....	1	....	....	1	....	4	13
14	George Washington University, Dept. of Med	....	....	1	2	....	3	....	20	....	....	....	3	....	1	....	....	2	3	1	....	14
15	Georgetown University, School of Med	....	....	....	1	1	10	....	48	1	....	....	1	....	....	....	2	....	2	6	28	15
16	Howard University, School of Med., Washington	5	....	2	....	....	1	1	18	5	7	....	2	....	....	....	3	2	....	9	1	16
17	Atlanta College of Phys. and Surgs., Atlanta	34	....	....	1	....	....	....	....	33	225	....	....	....	....	....	2	3	....	....	....	17
18	Atlanta School of Medicine, Atlanta	9	....	....	....	....	....	....	....	16	173	....	....	....	....	....	....	2	....	....	1	18
19	Georgia College of Eclectic Med. and Surg.—E.*	2	....	....	....	....	....	....	....	6	61	....	....	....	....	....	....	....	....	....	....	19
20	Medical College of Georgia, Augusta	1	....	....	....	....	1	....	....	9	98	....	....	....	....	....	....	....	....	....	....	20
21	Southern College of Medicine and Surgery, Atlanta	....	....	....	....	....	....	....	....	....	20	....	....	....	....	....	....	....	....	....	....	21
22	Bennett Medical College, Chicago	1	....	6	....	....	....	....	6	3	1	1	224	10	4	....	4	1	....	1	....	22
23	Chicago College of Medicine and Surgery, Chicago	4	2	5	3	6	1	....	....	4	6	....	186	42	19	4	5	6	6	....	2	23
24	College of Physicians and Surgeons, Chicago	....	....	....	....	3	....	....	1	1	....	2	256	32	28	8	2	....	....	....	1	24
25	Hahnemann Med. Coll. and Hosp., Chicago.—H	....	....	....	1	2	....	....	....	....	....	1	53	9	11	3	1	....	1	....	3	25
26	Hering Medical College, Chicago.—H	....	....	....	....	....	....	....	....	....	....	....	12	4	2	....	4	....	....	....	....	26
27	Jenner Medical College, Chicago	1	....	1	....	1	....	....	....	....	....	....	38	6	7	3	1	....	....	....	....	27
28	Northwestern University Medical School, Chicago	2	....	1	....	4	....	....	....	1	2	....	97	9	22	11	....	1	....	....	1	28
29	Rush Medical College, Chicago	....	1	2	4	4	4	....	....	1	2	5	200	23	33	19	1	9	....	....	4	29
30	Indiana University, School of Med., Indianapolis	....	....	1	....	....	....	....	....	....	....	....	....	148	....	....	....	....	....	....	....	30
31	Drake University, College of Medicine, Des Moines	....	....	....	....	....	....	....	....	....	....	....	4	....	35	....	....	....	....	....	....	31
32	State University of Iowa, Coll. of Med., Iowa City	....	....	....	....	....	....	....	....	....	....	....	1	....	96	....	1	....	....	....	....	32
33	State University of Ia., Coll. of Homeo. Med.—H	....	....	....	....	....	....	....	....	....	....	....	....	....	12	....	....	....	....	....	....	33
34	Kansas Medical College, Topeka	....	....	1	....	....	....	....	....	....	....	....	....	....	....	35	....	....	....	....	....	34
35	University of Kansas, School of Med., Kansas City	....	....	....	....	....	....	....	....	....	....	1	....	....	1	67	....	....	....	....	....	35
36	Louisville National Medical College, Louisville	....	....	....	....	....	....	....	....	....	....	....	....	....	....	17	....	....	....	....	....	36
37	University of Louisville, Med. Dept., Louisville	4	1	4	....	....	....	....	....	5	7	....	17	67	5	3	115	8	....	....	....	37
38	Tulane University Medical Dept., New Orleans	32	....	12	....	....	....	....	....	10	10	....	1	1	....	....	3	146	....	....	1	38
39	Medical School of Maine, Portland	....	....	....	....	....	3	....	....	....	....	....	....	....	....	....	....	....	70	....	4	39
40	Baltimore Medical College, Baltimore	2	....	....	1	....	11	1	....	....	....	....	1	....	....	....	....	....	2	23	15	40
41	College of Physicians and Surgeons, Baltimore	....	....	....	1	....	23	....	1	3	2	....	1	....	....	....	....	....	....	41	21	41
42	Johns Hopkins Univ., Med. Dept., Baltimore	8	....	4	14	....	12	....	3	1	22	1	9	8	9	3	12	4	3	53	12	42
43	Maryland Medical College, Baltimore	1	....	....	....	....	8	1	2	....	1	....	....	1	....	....	....	....	....	47	5	43
44	University of Maryland, School of Medicine	5	1	1	....	....	7	4	3	7	9	....	....	1	....	....	....	1	2	118	1	44
45	Boston University, School of Medicine.—H	....	....	....	....	....	2	....	....	....	....	....	....	....	....	1	....	....	8	....	55	45
46	College of Physicians and Surgeons, Boston	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	89	46
47	Harvard Medical School, Boston	1	....	....	13	7	3	....	....	....	1	....	6	2	3	3	1	....	20	....	110	47
48	Tufts College Medical School, Boston	....	....	....	....	....	12	....	....	....	2	....	1	....	1	....	....	....	10	....	260	48
49	Detroit College of Medicine, Detroit	....	....	....	....	....	....	....	....	....	....	....	....	4	....	....	....	....	....	....	....	49
50	Detroit Homeopathic College, Detroit.—H	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	50
51	Univ. of Michigan, Dept. of Med. and Surg	3	....	....	3	....	....	....	1	....	3	....	7	10	2	2	2	....	....	....	3	51
52	Univ. of Michigan, Homeo. Coll., Ann Arbor.—H	....	....	....	....	....	1	....	1	....	....	....	3	2	1	1	....	....	1	1	1	52
53	Univ. of Minnesota, Coll. of Med. and Surg	....	....	....	1	....	....	....	....	....	....	....	3	....	5	....	....	....	....	....	....	53
54	University of Mississippi, Medical Dept., Oxford	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	54
55	Mississippi Medical College, Meridian.*	5	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	1	....	55
56	University of Missouri, Medical Dept., Columbia	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	56
57	Kansas City Hahnemann Medical College.—H	....	....	....	....	....	....	....	....	....	....	....	....	....	3	14	....	....	....	....	....	57
58	University Medical College, Kansas City	....	....	....	....	1	....	....	....	....	....	....	4	1	2	30	2	1	....	....	....	58
59	Eclectic Medical University, Kansas City*	....	....	1	....	....	....	....	....	....	....	....	....	....	1	13	....	....	....	....	....	59
60	Ensworth Medical College, St. Joseph	....	....	1	....	....	....	....	....	....	....	....	1	....	3	9	....	....	....	....	....	60
61	American Medical College, St. Louis	....	....	3	....	....	....	....	....	2	....	....	50	2	3	5	2	....	....	....	1	61
62	St. Louis University, School of Medicine	1	1	2	2	5	2	....	....	....	1	2	66	9	10	7	2	1	....	....	1	62
63	St. Louis College of Physicians and Surgeons	....	....	2	....	....	....	....	....	....	....	....	11	1	....	....	2	....	....	....	....	63
64	Washington University, Medical Dept., St. Louis	1	....	1	1	....	....	....	....	....	....	....	17	3	1	6	....	1	....	....	....	64
65	Creighton Medical College, Omaha	....	....	....	1	1	1	....	....	....	....	2	....	....	29	4	....	....	....	....	....	65
66	Univ. of Nebraska, Coll. of Med., Lincoln-Omaha	....	....	....	....	1	....	....	....	....	....	....	....	....	8	1	....	....	....	....	....	66
67	Cotner Medical College.—E	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	67
68	Dartmouth Medical School, Hanover	....	....	....	....	....	3	....	....	....	....	....	....	....	....	....	....	....	1	....	13	68
69	Albany Medical College, Albany	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	8	69
70	Columbia University, Coll. of Phys. and Surgs	2	....	1	2	4	10	....	1	1	1	....	1	1	....	....	2	....	4	1	3	70
71	Cornell Univ. Medical College, New York City	....	....	....	4	....	....	....	....	....	....	....	....	1	2	....	....	....	....	....	2	71
72	Eclectic Med. Coll. of the City of New York.—E	....	....	....	....	....	1	....	....	....	1	....	....	....	....	....	....	....	1	....	....	72
73	Fordham Univ. School of Med., New York City	....	....	....	1	....	5	1	....	1	....	....	....	1	....	....	....	....	....	....	1	73
74	Long Island College Hospital, New York City	....	....	....	....	....	9	....	....	....	....	....	....	....	....	....	....	....	....	....	2	74
75	New York Homeo. Med. Coll. and Hosp.—H	....	....	....	2	....	4	....	1	....	2	....	1	1	....	....	....	....	....	1	2	75
76	New York Med. Coll. and Hosp. for Women.—H	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	76
77	Univ. and Bellevue Hosp. Med. Coll., New York	....	....	....	2	1	10	1	....	2	1	....	1	....	....	....	1	....	....	....	5	77
78	Syracuse University, College of Medicine, Syracuse	....	....	....	1	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	78
79	University of Buffalo, Medical Dept., Buffalo	....	....	....	....	....	....	....	....	....	....	....	1	2	....	....	....	....	....	....	....	79
80	Leonard Medical School, Raleigh	4	....	....	....	....	....	1	1	8	5	....	....	....	....	....	2	....	....	....	....	80
81	Univ. of North Carolina, Med. Dept., Chapel Hill	....	....	....	....	....	....	....	....	2	....	....	....	....	....	....	....	....	....	....	....	81
82	North Carolina Medical College, Charlotte	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	82
83	Wake Forest School of Medicine, Wake Forest	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	83
84	University of North Dakota, Medical Dept	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	84
85	Cleveland-Pulte Medical College, Cleveland.—H	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	85
86	Western Reserve Univ., Med. Dept., Cleveland	1	....	....	....	....	....	....	....	....	....	....	3	6	2	3	1	....	....	....	....	86
87	Eclectic Medical College, Cincinnati.—E	....	....	5	1	1	....	....	....	....	2	....	1	9	....	....	3	....	....	....	....	87
88	Ohio-Miami Med. Coll. of the Univ. of Cincinnati	....	....	....	1	2	....	....	....	....	....	....	....	2	....	1	17	....	....	....	2	88
89	Starling-Ohio Medical College, Columbus	....	....	....	....	....	....	....	....	....	....	....	1	4	....	....	1	....	....	....	1	89
90	Toledo Medical College, Toledo	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	90
91	University of Oklahoma, School of Med., Norman	....	....	....	....	....	1	....	....	....	2	....	3	3	3	7	2	....	....	....	....	91
92	University of Oregon, Medical Dept., Portland	....	....	....	....	1	....	....	....	....	....	....	....	1	....	2	....	....	....	....	....	92
93	Willamette University, Medical Dept., Salem	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	93
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	

H., Homeopathic; E., Eclectic; *Total exact; distribution based on that of 1910-11.

Number.	21 Michigan.....435	22 Minnesota.....206	23 Mississippi.....406	24 Missouri.....556	25 Montana.....33	26 Nebraska.....315	27 Nevada.....3	28 New Hampshire.68	29 New Jersey.....428	30 New Mexico.....8	31 New York.....2100	32 No. Carolina..491	33 North Dakota..58	34 Ohio.....818	35 Oklahoma.....103	36 Oregon.....140	37 Pennsylvania.1629	38 Rhode Island..96	39 So. Carolina..350	40 South Dakota..77	41 Tennessee.....525	42 Texas.....642	43 Utah.....60	44 Vermont.....127	45 Virginia.....448	46 Washington.....32	47 West Virginia.217	48 Wisconsin.....429	49 Wyoming.....14	50 Philippines, etc.88	51 Foreign.....600	52 Totals.....18,412	Number.
1	.....	.....	5	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	3	1	.....	.....	.....	.....	1	.....	.....	1	3	183	1
2	.....	.....	8	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	137	2
3	.....	.....	.....	4	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	10	.....	.....	.....	.....	.....	3	.....	.....	.....	.....	.....	.....	.....	.....	.....	145	3
4	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	3	16	4
5	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	35	5
6	.....	.....	.....	1	.....	1	1	.....	.....	.....	1	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	2	2	.....	2	.....	.....	.....	.....	.....	70	6
7	.....	1	.....	.....	.....	.....	1	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	1	66	7
8	.....	.....	.....	1	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	29	8
9	5	4	.....	8	.....	5	.....	1	3	.....	6	.....	.....	2	.....	1	4	.....	.....	.....	2	.....	.....	.....	.....	1	3	.....	.....	19	126	9
10	1	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	22	10
11	3	1	.....	.....	1	5	.....	.....	.....	1	3	.....	.....	1	.....	2	1	.....	.....	.....	5	.....	.....	.....	2	.....	.....	.....	.....	10	56	11
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14	.....	2	.....	.....	.....	1	.....	1	1	.....	6	3	.....	4	2	.....	6	1	1	.....	2	1	.....	1	10	.....	1	.....	.....	3	92	14
15	1	.....	1	.....	.....	.....	.....	.....	5	.....	8	1	.....	2	1	.....	11	8	.....	.....	1	.....	.....	.....	1	1	2	1	.....	1	155	15
16	.....	.....	1	4	1	.....	.....	.....	5	.....	7	13	1	6	.....	.....	6	2	11	.....	4	4	.....	.....	25	.....	.....	.....	.....	24	170	16
17	.....	.....	11	.....	.....	.....	.....	.....	.....	.....	5	4	.....	.....	.....	.....	1	1	35	.....	8	4	.....	.....	1	1	.....	.....	.....	3	372	17
18	.....	.....	9	.....	.....	.....	.....	.....	.....	.....	1	7	.....	.....	1	.....	1	.....	9	.....	.....	.....	2	.....	.....	.....	.....	.....	.....	2	233	18
19	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	70	19
20	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	15	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	126	20
21	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	20	21
22	20	8	4	3	.....	9	.....	.....	6	4	9	2	.....	6	.....	1	6	1	1	.....	2	1	.....	1	1	1	25	.....	13	20	402	22
23	14	8	2	16	1	9	.....	1	4	3	22	3	8	11	3	2	22	1	6	8	4	4	7	5	7	8	32	2	12	27	556	23
24	22	23	.....	3	4	9	.....	.....	.....	.....	2	.....	3	7	2	1	2	1	13	2	2	2	.....	3	7	.....	38	.....	3	23	506	24
25	2	.....	1	.....	1	2	.....	.....	.....	.....	1	.....	1	2	.....	.....	1	1	.....	.....	.....	1	1	.....	.....	.....	3	.....	.....	2	104	25
26	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	1	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	2	28	26
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29	16	13	2	21	3	21	.....	1	1	.....	8	.....	7	30	2	6	4	.....	.....	10	10	7	17	2	5	9	1	30	3	2	16	559	29
30	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	2	1	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	155	30
31	.....	1	.....	2	1	1	.....	.....	.....	.....	1	.....	.....	.....	.....	1	1	.....	.....	.....	.....	1	.....	.....	1	.....	.....	.....	.....	1	50	31
32	.....	3	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	2	.....	1	.....	.....	3	110	32
33	.....	1	.....	.....	.....	3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	16	33
34	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	37	34
35	.....	.....	.....	6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	75	35
36	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	17	36
37	2	.....	11	6	.....	1	.....	.....	3	1	5	3	1	3	5	1	6	.....	1	.....	11	19	.....	.....	3	1	29	2	.....	3	353	37
38	.....	.....	40	6	.....	.....	.....	.....	.....	.....	.....	2	.....	.....	9	.....	.....	.....	2	.....	2	39	.....	.....	.....	.....	1	.....	1	3	321	38
39	.....	.....	.....	.....	.....	.....	.....	4	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	83	39
40	.....	.....	.....	.....	.....	.....	.....	4	10	.....	22	8	.....	2	.....	1	42	5	3	.....	1	2	.....	.....	6	.....	5	.....	.....	32	199	40
41	.....	1	1	.....	.....	.....	.....	.....	15	.....	17	5	.....	4	.....	.....	57	11	2	.....	1	1	10	.....	7	1	65	2	.....	28	321	41
42	.....	3	3	7	1	2	.....	2	6	.....	26	11	1	20	1	.....	31	1	5	3	2	5	2	1	15	3	6	8	1	5	357	42
43	.....	.....	.....	.....	.....	.....	.....	2	14	.....	8	3	.....	1	.....	.....	35	3	3	.....	1	.....	.....	.....	6	.....	21	.....	.....	5	182	43
44	.....	.....	1	.....	.....	.....	.....	.....	12	.....	6	45	.....	1	.....	.....	19	3	30	.....	.....	1	.....	.....	19	.....	3	.....	.....	1	319	44
45	.....	.....	.....	.....	.....	.....	.....	5	1	.....	3	.....	.....	.....	.....	.....	2	3	.....	.....	.....	.....	.....	2	1	.....	.....	.....	.....	11	94	45
46	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	89	46
47	.....	2	.....	4	1	2	.....	5	1	.....	15	1	1	7	.....	1	10	15	.....	1	1	3	1	3	.....	2	1	.....	1	4	6	256	47
48	.....	.....	.....	.....	.....	.....	.....	12	.....	.....	4	.....	.....	1	.....	.....	.....	16	.....	.....	.....	.....	.....	2	.....	.....	.....	.....	.....	.....	8	329	48
49	140	1	.....	.....	.....	.....	.....	.....	.....	.....	3	.....	.....	3	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	19	172	49
50	20	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	1	22	50
51	110	.....	.....	2	1	2	.....	.....	4	.....	24	.....	1	23	.....	1	9	.....	1	3	1	.....	.....	1	2	4	1	2	.....	8	6	242	51
52	40	1	.....	.....	.....	.....	.....	.....	.....	.....	15	.....	.....	12	.....	1	3	5	.....	.....	.....	.....	.....	.....	.....	.....	1	3	.....	.....	2	91	52
53	.....	154	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	7	1	.....	.....	.....	.....	4	.....	.....	.....	.....	.....	4	.....	.....	.....	.....	.....	183	53
54	.....	.....	43	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	4	.....	.....	.....	.....	.....	.....	44	54
55	.....	.....	51	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	2	.....	.....	.....	.....	.....	.....	59	55
56	.....	.....	.....	33	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	36	56
57	.....	.....	.....	14	.....	2	.....	.....	.....	.....	.....	.....	.....	.....	6	.....	.....	.....	.....	.....	.....	2	.....	.....	.....	.....	.....	.....	.....	.....	41	57
58	1	.....	.....	21	.....	2	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	3	70	58
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60	.....	.....	.....	32	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	47	60
61	.....	1	2	86	.....	1	.....	.....	1	.....	1	.....	.....	.....	5	.....	.....	.....	.....	.....	.....	3	.....	.....	.....	.....	.....	.....	.....	1	3	172	61
62	4	3	.....	110	1	3	.....	.....	.....	.....	5	.....	.....	8	6	.....	2	1	.....	.....	.....	1	.....	.....	4	.....	4	.....	.....	.....	5	271	62
63	.....	.....	1	14	.....	.....	.....	.....	.....	.....	2	.....	.....	.....	1	.....	.....	.....	.....	1	3	2	.....	.....	.....	.....	.....	.....	.....	.....	38	63
64	2	.....	.....	68	.....	1	.....	.....	.....	.....	.....	.....	.....	3	.....	.....	.....	.....	.....	.....	2	.....	.....	.....	.....	.....	1	.....	1	.....	109	64
65	3	7	.....	6	1	123	.....	.....	.....	.....	1	.....	1	1	.....	.....	2	.....	.....	5	.....	.....	1	.....	.....	.....	1	2	.....	2	194	65
66	.....	.....	.....	1	.....	57	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	70	66
67	.....	.....	.....	.....	.....	26	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	26	67
68	.....	.....	.....	.....	.....	.....	.....	11	4	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	4	.....	.....	.....	.....	.....	.....	36	68
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71	.....	.....	.....	.....	.....	.....	.....	.....	4	.....	60	1	.....	4	1	.....	1	1	.....	1	1	.....	.....	.....	1	.....	.....	.....	.....	1	85	71
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73	1	.....	.....	.....	.....	.....	.....	.....	8	.....	65	.....	.....	.....	.....	.....	4	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	4	25	118	73
74	.....	.....	.....	.....	.....	.....	.....	.....	17	.....	382	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2	412	74
75	1	.....	.....	.....	.....	.....	.....	.....	23	.....	112	.....	1	.....	.....	1	4	2	.....	.....	1	1	.....	2	.....	.....	1	.....	.....	7	170	75
76	.....	.....	.....	.....	.....	.....	.....	.....	2	.....	29	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	31	76
77	.....	1	.....	1	.....	.....	.....	1	93	.....	338	.....	.....	5	1	.....	1	2	.....	.....	.....	.....	1	1	1	1	1	.....	.....	4	476	77
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82	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	92	.....	.....	.....	.....	.....	.....	5	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	3	100	82
83	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	35	.....	.....	.....	.....	.....	.....	2	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	39	83
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85	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	54	.....	.....	24	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	79	85
86	2	1	1	.....	1	1	.....	.....	.....	.....	2	.....	.....	132	1	.....	11	.....	2	.....	.....	1	.....	.....	.....	.....	3	.....	.....	2	176	86
87	1	.....	.....	2	.....	2	.....	.....	1	.....	1	.....	.....	45	1	.....	7	.....	.....	.....	1	1	.....	.....	.....	.....	5	.....	.....	.....	89	87
88	.....	.....	.....	.....	.....	.....	.....	.....	2	.....	2	.....	.....	78	.....	.....	2	.....	.....	.....	1	1	.....	.....	.....	.....	3	.....	.....	2	113	88
89	.....	1	.....	.....	1	.....	.....	.....	1	.....	1	.....	1	225	.....	.....	9	.....	.....	.....	.....	.....	.....	.....	1	7	.....	.....	.....	3	256	89
90	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	36	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	39	90
91	.....	.....	1	4	.....	1	.....	.....	.....	.....	.....	.....	.....	1	3	.....	.....	.....	1	.....	.....	13	.....	.....	.....	4	.....	.....	.....	2	51	91
92	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	48	.....	.....	.....	.....	.....	.....	.....	.....	14	.....	.....	.....	.....	1	67	92
93	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	56	.....	.....	.....	.....	.....	.....	.....	.....	4	.....	.....	.....	.....	.....	60	93
	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	

Number	NAME OF COLLEGE	1 Alabama.....408	2 Arizona.....9	3 Arkansas.....251	4 California.....941	5 Colorado.....188	6 Connecticut.....231	7 Delaware.....32	8 Dist. of Col...122	9 Florida.....158	10 Georgia.....749	11 Idaho.....25	12 Illinois.....1338	13 Indiana.....454	14 Iowa.....404	15 Kansas.....317	16 Kentucky.....293	17 Louisiana.....389	18 Maine.....160	19 Maryland.....311	20 Massachusetts.712	Number
94	Hahnemann Medical College and Hospital.—H....	....	....	....	....	....	1	2	....	....	....	....	....	....	1	....	....	....	....	....	....	94
95	Jefferson Medical College, Philadelphia.....	4	....	5	3	....	13	9	....	2	5	3	5	8	10	8	11	2	3	1	10	95
96	Medico-Chirurgical College of Philadelphia....	1	....	....	1	....	5	3	1	....	....	....	1	....	....	....	....	1	....	1	....	96
97	Temple University, Medical Dept., Philadelphia....	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	97
98	University of Pennsylvania, Dept. of Med.....	1	....	....	2	1	2	6	....	3	3	2	2	4	1	2	5	2	4	1	5	98
99	Woman's Medical College of Pennsylvania.....	....	....	....	2	2	3	....	....	....	....	....	1	....	2	1	....	2	....	....	5	99
100	University of Pittsburgh, Med. Dept., Pittsburgh..	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	100
101	Medical College of South Carolina, Charleston....	....	....	....	....	....	....	....	....	3	2	....	....	....	....	....	....	....	....	....	....	101
102	Univ. of South Dakota, Coll. of Med., Vermilion..	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	102
103	Lincoln Memorial Univ., Med. Dept., Knoxville....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	12	....	....	....	....	103
104	Meharry Medical College, Nashville.....	20	....	12	....	1	....	....	....	9	44	....	1	2	....	7	8	14	....	1	....	104
105	Vanderbilt University, Med. Dept., Nashville.....	26	1	5	6	1	....	....	....	4	11	....	7	....	1	1	42	13	....	....	....	105
106	University of Tennessee, Coll. of Med., Memphis...	6	....	10	1	....	1	....	....	2	1	....	5	....	....	1	5	8	....	....	....	106
107	Memphis Hospital Medical College, Memphis.....	22	....	35	....	1	....	....	....	2	2	....	1	....	1	....	7	44	....	....	....	107
108	Univ. of West Tennessee, Med. Dept., Memphis....	....	....	2	....	....	....	....	....	4	3	....	....	....	....	....	....	3	....	....	....	108
109	Fort Worth School of Medicine, Fort Worth.....	1	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	109
110	University of Texas, Dept. of Med., Galveston....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	1	....	1	....	....	....	110
111	Baylor University, College of Medicine, Dallas....	....	....	2	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	111
112	Southern Methodist University, Med. Dept., Dallas.	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	112
113	Univ. of Utah, School of Med., Salt Lake City....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	113
114	Univ. of Vermont, College of Med., Burlington....	....	....	....	....	....	15	....	....	....	....	1	....	....	....	....	....	....	9	....	21	114
115	Medical College of Virginia, Richmond.....	....	....	....	1	....	....	....	....	....	1	....	1	1	....	....	....	....	....	1	....	115
116	University College of Medicine, Richmond.....	2	1	....	....	....	....	....	....	1	2	....	....	....	....	....	....	....	....	....	....	116
117	Univ. of Virginia, Dept. of Med., Charlottesville..	5	....	3	....	1	....	....	....	1	2	....	....	....	....	....	....	....	....	1	1	117
118	West Virginia Univ. Coll. of Med., Morgantown...	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	118
119	Milwaukee Medical College.....	....	....	....	....	1	....	....	....	....	....	....	8	....	3	2	....	....	....	....	....	119
120	Wisconsin Coll. of Phys. and Surgs., Milwaukee...	....	....	1	1	....	....	....	....	....	....	....	3	....	1	....	....	....	....	....	....	120
121	University of Wisconsin, Coll. of Med., Madison...	....	....	....	....	....	....	....	1	....	....	....	3	1	....	....	1	....	....	....	....	121
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	

H., Homeopathic; E., Eclectic; * Total exact; distribution based on that of 1910-11.

—Georgetown University School of Medicine spent about $50,000 during the year in the erection of a maternity department and a dispensary of the Georgetown University Hospital.

—George Washington University Department of Medicine received $10,000 during the year for endowment.

Georgia.—The University of Georgia Medical Department has adopted plans for the new city hospital on an estimate of $240,000. The teaching facilities of this hospital will be entirely controlled by the medical school. On March 6, 1912, all property of the Medical College of Georgia, Augusta, was transferred to the University of Georgia. This school announces that beginning Jan. 1, 1914, two years of collegiate work will be required of every student for admission.

Illinois.—Two new additions have been built to the Presbyterian Hospital of Chicago, the teaching facilities of which are controlled by Rush Medical College, one at a cost of $300,000 and the other, the Memorial Hospital for Children, at a cost of $150,000.

—Northwestern University has purchased property adjacent to the Medical School to provide for future extension, expending therefor $160,000.

Indiana.—Dr. William Flynn, of Marion, Ind., formerly a member of the faculty of the Indiana Medical College, has willed his entire estate, valued at $30,000, to the Indiana University School of Medicine. A new city dispensary has been opened at this medical school to care for the sick poor of Indianapolis. In connection with this dispensary Dr. Charles P. Emerson has organized a social service department.

Iowa.—Drake University College of Medicine, Des Moines, has completed a new addition to the medical building at a cost of $25,000.

—A new wing to the University Hospital of the State University of Iowa College of Medicine, Iowa City, is rapidly approaching completion at a cost of about $125,000. It is expected to be ready for occupancy by September first next.

Kansas.—By the will of the late Dr. J. E. Robinson, the first Governor of the State of Kansas, and since the death of his widow, his entire estate, valued at from $80,000 to $120,000, has been left to the University of Kansas. According to the wish of Dr. Robinson the income from this gift will be used in the development of the medical school.

Louisiana.—Tulane University Medical Department, New Orleans, has received pledges and gifts to the amount of about $29,000 for the new Department of Tropical Medicine, Hygiene and Preventive Medicine. Small gifts amounting to about $1,800 have been received for the departments of pathology, physiology and internal medicine.

Maine.—The Medical School of Maine, Portland, has received a sum of $40,000 for endowments and $23,000 for a teaching hospital. By the will of the late Dr. Albion S. Whitmore, of Boston, his medical library was bequeathed to tne Medical School of Maine.

Maryland.—Subscriptions to the pathological endowment fund for the University of Maryland, School of Medicine have been received amounting July 1, 1912, to $10,056. An effort is being made to raise $100,000 for that fund.

—The Baltimore Medical College received a sum aggregating $39,000, for improvements to the Maryland General Hospital. Of this sum $19,000 was given by the State of Maryland; $10,000 by the City of Baltimore; $5,000 by the Hospital Auxiliary Association and $1,500 from other sources. Improvements to the college building are to be made at a cost of $35,000.

Massachusetts.—The Boston University School of Medicine, Boston, received $6,000 during the year for endowments. The new Robert Dawson Evans Memorial for Clinical Research and Preventive Medicine was dedicated in March, 1912. It was erected as a part of the Massachusetts Homeopathic Hospital as a memorial to the late Robert Dawson Evans by his widow.

—Harvard University Medical School has recently established a special Graduate School of Medicine with Dr. Horace D. Arnold as its dean. This promises a new plane for post-graduate medical teaching in this country.

Michigan.—The University of Michigan, Department of Medicine and Surgery, Ann Arbor, spent about $20,000 in improvements to the University Hospital.

Minnesota.—The University of Minnesota College of Medicine and Surgery, Minneapolis, has completed and equipped an anatomy building at a total expense of $310,000. The New Millard Hall has also been completed which, with its equipment, costs $326,000. Valuable gifts to the medical

	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	
Number.	Michigan.....425	Minnesota.....295	Mississippi.....400	Missouri.....556	Montana.....28	Nebraska.....315	Nevada.....3	New Hampshire.66	New Jersey.....428	New Mexico.....8	New York.....2109	No. Carolina..491	North Dakota..68	Ohio.....818	Oklahoma.....103	Oregon.....140	Pennsylvania.1529	Rhode Island..90	So. Carolina..389	South Dakota..77	Tennessee.....533	Texas.....642	Utah.....60	Vermont.....127	Virginia.....448	Washington...93	West Virginia.217	Wisconsin.....429	Wyoming.....14	Philippines, etc.86	Foreign.....609	Totals.....13,413	Number.
94	.....	.....	.....	.....	.....	.....	.....	.....	11	.....	3	.....	.....	1	.....	.....	90	1	.....	.....	.....	.....	.....	.....	2	1	.....	1	.....	.....	1	116	94
95	1	2	8	4	2	6	.....	2	53	.....	19	29	.....	23	.....	4	305	3	9	.....	4	3	3	6	4	4	4	1	1	6	8	616	95
96	.....	.....	.....	.....	.....	.....	.....	1	24	1	6	.....	.....	1	.....	.....	263	1	.....	.....	.....	2	3	1	.....	.....	.....	3	.....	4	17	341	96
97	.....	.....	1	.....	.....	.....	.....	.....	6	.....	1	.....	.....	.....	.....	.....	60	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	11	81	97
98	1	2	2	1	.....	3	.....	.....	20	.....	17	9	.....	8	.....	1	212	2	2	.....	2	4	1	.....	5	5	2	6	.....	2	14	367	98
99	1	1	.....	1	1	.....	.....	1	10	.....	17	1	.....	4	.....	.....	36	1	2	.....	.....	1	.....	1	.....	1	.....	.....	.....	.....	15	112	99
100	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	1	.....	.....	169	.....	.....	.....	.....	.....	.....	.....	.....	.....	3	.....	.....	.....	.....	174	100
101	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	2	.....	.....	.....	.....	.....	.....	154	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	1	164	101
102	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	9	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	9	102
103	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	4	.....	1	.....	.....	.....	.....	2	.....	70	.....	.....	.....	5	.....	.....	.....	.....	1	.....	97	103
104	.....	.....	36	9	.....	.....	.....	.....	.....	.....	.....	9	.....	1	6	.....	.....	.....	13	.....	51	65	.....	.....	4	.....	2	.....	.....	.....	23	335	104
105	.....	.....	22	10	2	.....	.....	.....	1	.....	2	6	.....	.....	5	.....	.....	.....	5	.....	180	37	.....	.....	2	.....	.....	.....	.....	.....	2	392	105
106	.....	.....	13	2	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	4	.....	.....	.....	.....	.....	77	6	.....	.....	1	.....	.....	.....	.....	.....	1	155	106
107	.....	.....	97	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	9	.....	.....	.....	.....	.....	65	30	.....	.....	1	.....	.....	.....	.....	.....	.....	319	107
108	.....	.....	4	.....	.....	.....	.....	.....	.....	.....	.....	4	.....	.....	1	.....	1	.....	3	.....	4	3	.....	.....	2	.....	1	.....	.....	.....	2	27	108
109	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	3	.....	.....	.....	.....	.....	.....	66	.....	.....	.....	.....	.....	.....	.....	.....	.....	71	109
110	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	159	.....	.....	.....	.....	.....	.....	.....	.....	.....	162	110
111	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2	.....	.....	.....	.....	.....	1	62	.....	.....	.....	.....	.....	.....	.....	.....	.....	66	111
112	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	60	.....	.....	.....	.....	.....	.....	.....	.....	.....	62	112
113	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	11	.....	.....	.....	.....	.....	.....	.....	.....	12	113
114	.....	.....	.....	.....	.....	.....	.....	11	3	.....	21	.....	.....	.....	.....	.....	2	3	.....	.....	.....	.....	.....	83	.....	.....	.....	.....	.....	.....	7	176	114
115	.....	1	.....	.....	.....	.....	.....	.....	4	.....	9	39	.....	.....	.....	.....	3	.....	5	.....	1	1	.....	.....	163	1	6	.....	1	.....	5	242	115
116	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	2	44	.....	1	.....	.....	1	.....	2	.....	.....	.....	.....	.....	20	.....	8	.....	.....	.....	5	160	116
117	.....	.....	6	.....	.....	.....	.....	.....	.....	.....	1	9	.....	.....	.....	.....	.....	.....	7	.....	2	.....	.....	.....	36	.....	4	.....	.....	1	2	82	117
118	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	5	.....	.....	.....	.....	.....	.....	.....	.....	.....	13	.....	.....	1	.....	19	118
119	12	26	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	4	4	1	.....	1	.....	.....	2	.....	.....	.....	.....	.....	.....	.....	160	.....	3	14	242	119
120	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2	.....	.....	.....	.....	.....	.....	.....	31	.....	.....	3	43	120
121	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	1	.....	2	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	49	.....	.....	.....	60	121
	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	

library have been received, aggregating to the value of about $5,000. These were given by Drs. Charles A. Wheaton, Charles L. Green, J. E. Moore and others.

Missouri.—During the year the St. Louis University School of Medicine has received gifts for various purposes amounting to $8,210. A new dispensary has been opened at the Sisters of St. Mary's Infirmary, the clinics to be placed in charge of the St. Louis University School of Medicine.

—The contract for the new Barnes Hospital building on Kingshighway has been awarded for $808,000. This is to be the teaching hospital of the Washington University, School of Medicine.

Nebraska.—The University of Nebraska College of Medicine is erecting a laboratory building on the new medical college campus at Omaha, for which an appropriation of $100,000 was made by the State Legislature a year ago.

—The Cotner Medical College is making an effort to raise money for a new medical college building. It is reported that about $10,000 has already been subscribed for this purpose.

New York.—The trustees of the Syracuse University College of Medicine have authorized the building of a college dispensary to cost $75,000. The building will be erected during the coming year.

—It is reported that the New York Medical College and Flower Hospital has received $108,000 during the year for general purposes.

—The old penitentiary grounds at Albany have been transferred to the trustees of the Albany Medical College as a site for a new medical college building which must be erected within the next three years.

—The New York Board of Regents adopted a resolution requiring that after Oct. 1, 1912, no medical college would be registered in that state as maintaining a proper medical standard unless it had at least six expert, full-time, salaried instructors.

North Carolina.—The Leonard Medical School, Raleigh, has recently completed a new hospital at a cost of $20,000. A three-story addition has also been made to the college building, at a cost of about $2,000. Various gifts amounting to about $5,000 were received during the year.

—The University of North Carolina Medical Department, Chapel Hill, has recently completed a new and commodious medical laboratory building at the cost of $50,000. It was dedicated May 8, 1912, when Mr. Edgar F. Smith, provost to the University of Pennsylvania, gave the principal address.

Ohio.—It is reported that the Eclectic Medical College of Cincinnati has received endowments during the year to the amount of $16,300.

—During the year about $290,000 have been added to the endowments for Western Reserve University Medical Department, Cleveland. In addition to this subscriptions have been received amounting to $450,000, these being payable within the next two years. Sufficient was received to complete the $1,000,000 raised for the additional endowment for the medical school.

Oklahoma.—The new hospital for the State University School of Medicine, was opened Jan. 17, 1912. It was formerly the Rolater Hospital, which was leased for three years, enlarged and remodeled. It will accommodate sixty patients.

Pennsylvania.—During the year the Jefferson Medical College received by gift, the Daniel Baugh Institute of Anatomy, fitted and equipped, representing a total value of $150,000. The sum of $14,000 was received for a new teaching laboratory of clinical medicine. Various sums aggregating $90,000 have been received for endowment and extensions to the Jefferson Hospital. About $100,000 was received for the maintenance of this hospital, of which sum $95,000 was given by the State of Pennsylvania.

—The Temple University Medical Department, Philadelphia, has erected a clinical laboratory building adjoining the Samaritan Hospital, at a cost of about $10,000. About $15,000 has been received for the extensions to Samaritan Hospital, and for the maintenance of this hospital a sum of $70,000 was granted by the State of Pennsylvania.

—A gift of $1,000 was received by the Medico-Chirurgical College of Philadelphia for enlarging the chemical library.

—Hahnemann Medical College, of Philadelphia, received an endowment of $200,000. Half of this sum was received from Walter Hering for the endowment of the Constantine Hering professorship of materia medica and therapeutics; the other

Name of College.	Enrolled During 1911-12. 1st Yr.	2d Yr.	3d Yr.	4th Yr.	Total.
Birmingham Medical Coll., Birmingham	46	34	72	31	183
Univ. of Alabama, Med. Dept., Mobile	26	28	44	39	137
Univ. of Ark., Med. Dept., Little Rock	22	30	40	53	145
College of P. and S., San Francisco	6	4	2	4	16
Hahn. Med. Coll. of Pac., San Fran.—H.	6	6	18	5	35
Leland Stanford Junior Univ., Dept. of Med., San Francisco	17	10	7	36	70
University of California, Medical Department, San Francisco-Los Angeles	33	18	10	27	88
Cal. Eclec. M. Coll., Los Angeles.—E. (a)	.....	.....	.....	.....	28
College of P. and S., Los Angeles	41	33	26	26	126
Oakland Coll. of M. and Surg., Oakland	2	7	6	7	22
Coll. of Med. Evangelists, Loma Linda	24	23	9	.....	56
University of Colorado, School of Med.	13	14	51	40	118
Yale Medical School, New Haven	11	10	11	31	63
George Washington University, Dept. of Medicine, Washington	29	14	9	40	92
Georgetown University School of Medicine, Washington	56	36	36	27	155
Howard University, School of Medicine, Washington	35	28	52	55	170
Atlanta College of P. and S., Atlanta	141	76	86	69	372
Atlanta School of Medicine, Atlanta	43	73	58	59	233
Georgia College of Eclectic Medicine and Surgery, Atlanta.—E (a)	.....	.....	.....	.....	70
Southern College of Medicine and Surgery, Atlanta (a)	.....	.....	.....	.....	20
University of Georgia, College of Medicine, Augusta	22	28	34	42	126
Bennett Medical College, Chicago	114	104	69	115	402
Chicago College of Med. and Surg.	116	108	174	158	556
College of P. and S., Chicago	123	109	127	147	506
Hahnemann Medical College and Hospital, Chicago.—H.	20	24	26	34	104
Hering Medical College, Chicago.—H.	5	4	12	7	28
Jenner Medical College, Chicago	72	28	21	17	138
Northwestern University Medical School, Chicago (b)	38	44	57	79	259
Rush Medical College, Chicago (c)	164	165	91	130	550
Indiana University, School of Medicine, Indianapolis	35	22	51	47	155
Drake University, College of Medicine	5	4	24	17	50
State University of Iowa, College of Medicine, Iowa City	33	18	22	37	110
State University of Iowa, College of Homeopathic Medicine, Iowa City.—H.	3	1	5	7	16
Kansas Medical College, Topeka	4	4	19	10	37
University of Kansas, School of Medicine, Kansas City	34	17	9	15	75
Louisville Nat. Med. Coll., Louisville	10	.....	3	4	17
University of Louisville, Med. Dept.	89	64	80	120	353
Tulane Univ. Med. Dept., New Orleans	61	66	74	120	321
Medical School of Maine, Portland	35	22	15	11	83
Baltimore Medical College, Baltimore	89	44	33	33	199
College of P. and S., Baltimore	88	57	94	82	321
Johns Hopkins University, Medical Department, Baltimore	97	94	81	85	357
Maryland Medical College, Baltimore	25	21	45	91	182
University of Maryland, School of Med.	79	81	75	84	319
Boston Univ., School of Medicine.—H.	38	25	13	18	94
College of P. and S., Boston (a)	.....	.....	.....	.....	80
Harvard Medical School, Boston	95	57	56	50	258
Tufts Coll. Med. School, Boston	98	85	63	83	329
Detroit College of Medicine, Detroit	52	49	32	39	172
Detroit Homeo. College, Detroit.—H.	8	5	4	5	22
University of Michigan, Dept. of Med. and Surg., Ann Arbor	58	53	42	89	242
University of Michigan, Homeopathic College, Ann Arbor.—H.	30	21	19	21	91
University of Minnesota, Coll. of Med. and Surg., Minneapolis	62	40	46	35	183
University of Mississippi, Medical Department, Oxford	20	24	.....	.....	44
Mississippi Med. Coll., Meridian	16	12	14	17	59
University of Missouri, Medical Department, Columbia (e)	21	15	.....	.....	36
Kansas City Hahnemann Med. Coll.—H.	9	11	11	10	41
Univ. Med. Coll., Kansas City (d)	.....	.....	41	29	70
Eclectic Med. Univ., Kansas City	16	16	5	13	50
Ensworth Medical College, St. Joseph	12	19	11	5	47
American Medical College, St. Louis	45	33	48	46	172
St. Louis Univ., School of Medicine	67	41	85	78	271
St. Louis College of P. and S.	7	10	9	12	38
Washington Univ., Med. Dept., St. Louis	24	10	31	44	109
Creighton Medical College, Omaha	54	36	50	54	194
University of Nebraska, College of Medicine, Lincoln and Omaha	23	27	11	9	70
Cotner Medical College.—E	6	4	9	7	26
Dartmouth Medical School, Hanover	8	7	12	9	36
Albany Medical College, Albany	83	50	47	43	223
Columbia University, Coll. of P. and S.	81	71	104	91	347
Cornell University Medical College, New York City	32	23	19	11	85
Eclectic Medical College of the City of New York.—E	19	7	4	15	45
Fordham University School of Med.	31	29	31	27	118
Long Island Coll. Hosp., New York City	116	133	94	69	412
New York Homeopathic Medical College and Hospital.—H.	70	31	35	34	170
New York Medical College and Hospital for Women.—H.	16	7	6	2	31
University and Bellevue Hospital Medical College, New York	205	104	84	83	476
Syracuse University, College of Medicine, Syracuse	21	15	23	32	91
University of Buffalo, Medical Department, Buffalo	82	56	48	40	228
Leonard Medical School, Raleigh	28	34	25	34	121
University of North Carolina, Medical Department, Chapel Hill (e)	29	25	.....	.....	54
North Carolina Med. Coll., Charlotte	22	24	27	27	100
Wake Forest School of Medicine (e)	28	11	.....	.....	39
Univ. of North Dakota, Med. Dept., University-Grand Forks (e)	8	5	.....	.....	13
Cleveland-Pulte Med. Coll., Cleveland.—H	29	13	23	14	79
Western Reserve University Medical Department, Cleveland	48	33	42	53	176
Eclectic Med. Coll., Cincinnati.—E	23	20	27	19	89
Ohio-Miami Medical College of the University of Cincinnati	18	11	28	56	113
Starling-Ohio Medical Coll., Columbus	73	70	59	54	256
Toledo Medical College, Toledo	8	9	13	9	39
Univ. of Oklahoma, School of Med., Norman and Oklahoma City	18	13	9	11	51
University of Oregon, Medical Department, Portland	18	13	20	16	67
Willamette University, Medical Department, Salem	17	19	12	12	60
Hahnemann Medical College and Hospital, Philadelphia.—H.	20	19	29	48	116
Jefferson Medical College, Philadelphia	174	156	134	152	616
Medico-Chirurgical Coll. of Philadelphia	82	93	85	81	341
Temple University, Medical Department, Philadelphia	17	17	21	26	81
University of Pennsylvania, Department of Medicine, Philadelphia	67	70	98	132	367
Woman's Medical College of Pennsylvania, Philadelphia	33	21	23	35	112
Univ. of Pittsburgh, Med. Dept.	16	47	44	67	174
Med. Coll. of S. Carolina, Charleston	32	25	42	65	164
University of South Dakota, College of Medicine, Vermilion (e)	4	5	.....	.....	9
Lincoln Memorial University Medical Department, Knoxville	22	15	24	26	97
Meharry Medical College, Nashville	85	81	94	75	335
Vanderbilt Univ., Med. Dept., Nashville	131	93	85	83	392
University of Tennessee, College of Medicine, Memphis	33	27	42	53	155
Memphis Hosp. Med. Coll., Memphis	73	50	84	112	319
University of West Tennessee, Medical Department, Memphis	12	4	8	13	37
Fort Worth Sch. of Med., Ft. Worth	22	14	18	17	71
University of Texas, Department of Medicine, Galveston	49	22	47	44	162
Baylor Univ., Coll. of Med., Dallas	11	18	18	21	68
Southern Methodist University, Medical Department, Dallas	12	21	15	14	62
University of Utah, School of Medicine, Salt Lake City (e)	8	4	.....	.....	12
University of Vermont, College of Medicine, Burlington	46	43	42	45	176
Medical College of Virginia, Richmond	81	60	40	61	242
University Coll. of Med., Richmond	45	36	40	39	160
University of Virginia, Department of Medicine, Charlottesville	30	26	14	12	82
West Virginia University School of Medicine, Morgantown (e)	13	6	.....	.....	19
Milwaukee Medical College	71	55	65	51	242
Wisconsin College of Physicians and Surgeons, Milwaukee	9	10	12	12	43
University of Wisconsin, College of Medicine, Madison (e)	36	24	.....	.....	60
Totals (f)	5048	4063	4294	4759	18412

References.—(a) Classified lists of students not published. (b) Total includes 41 students unclassified because of conditions. (c) No distinction made by college between students of first and second years, so total has been equally divided. (d) Only third and fourth years of course given. (e) Only first and second years of course given. (f) Grand total includes also the figures for the unclassified students referred to in (a) and (b).

Note.—This table allows of comparison not only between classes of each college but also between different colleges. The figures are particularly interesting at this time owing to the general increase in entrance requirements by a large number of medical colleges. The effect of these higher requirements is shown by the smaller classes enrolled. For example, two years ago the University of Colorado began requiring two years of college work for admission; the result is seen in smaller enrolments of students in the first and second years. The same is true regarding Drake University. In the University of Pennsylvania it can readily be seen that the higher requirements began three years ago. On the other hand, the temporary benefit reaped by some colleges which have retained the lower entrance standards is shown by larger enrolments. This is well illustrated by the larger classes enrolled in the first and second years by two of the New York colleges, and by one Philadelphia college. Both sides of the equation are shown in the Georgia schools where two colleges, last year, adhered to a four-year high school education and naturally reduced the number of their first year matriculants, while another college by retaining a lower requirement registered almost twice the usual number. The large fourth year class registered by one of the Maryland colleges is found on investigation to be due to unusually generous allowances of credit for advanced standing. On the whole it is noteworthy that there are 5,048 first year students, nearly a thousand more than are enrolled in the second class year, although only about three hundred more than were enrolled in the fourth year class.

half by the will of Mrs. William L. Elkins, the income to be used for the general support of the institution.

Tennessee.—It is reported that the Lincoln Memorial University Medical Department has erected a new laboratory building at the cost of about $10,000.

—The University of Tennessee College of Medicine, Memphis, has a new four story laboratory building rapidly approaching completion, the estimated cost of which is $30,000.

—The Meharry Medical College, Nashville, has obtained a sum of $10,000 for the completion of the new Hubbard Hospital. Mr. Julius Rosenwald, of Chicago, has agreed to give $2,500 annually for five years to Meharry Medical College, providing that $37,500 is raised from other sources during that time. By the will of the late Dr. Robert F. Boyd, $5,000 was left to the George W. Hubbard Hospital.

—Vanderbilt University Medical Department has received gifts to the amount of $300,000, half of which was for the endowment of the institution and the other half for medical buildings. A sum of $40,000 was also secured for the erection of a teaching hospital and $12,000 for hospital maintenance. The Nashville Academy of Medicine has given $4,000 as an addition to the medical library. A new laboratory building is rapidly approaching completion on the new campus recently received and which formerly belonged to the Peabody Normal College.

Texas.—The University of Texas, Department of Medicine, Galveston, has let the contract for an Isolation Pavilion for treating contagious diseases on the grounds of the Sealy Hospital. It is expected this building will be completed by the first of November. The cost will be about $16,000. The school has received an appropriation from the legislature of $65,000 for maintenance.

—The Southern Methodist University Medical Department, Dallas, it is reported, has secured $5,000 for equipment of laboratories.

Vermont.—The University of Vermont College of Medicine, Burlington, received a state appropriation of $10,000.

Virginia.—The Medical College of Virginia receives annually an appropriation of $5,000 from the State of Virginia.

—The new building of the University College of Medicine, erected at a cost of about $136,000, was opened for public inspection May 22, 1912.

Wisconsin.—A new clinical laboratory building is being erected at the University of Wisconsin to be in charge of the Student Medical Advisor. This has been found necessary because of the growth of the work of examining into the physical condition of the students in attendance in the various departments of the university.

Philippine Islands.—New buildings have been erected for the University of the Philippines, College of Medicine, in the last few years as follows: A hospital of 350 beds at a cost of about $390,000 and a two- and three-story laboratory building having a frontage of nearly 300 feet, at a cost of approximately $125,000. This school requires a five-year course, the fifth year being spent by the student as an intern in the hospital. After Jan. 1, 1914, two years of collegiate work will be required for admission. It is the medical department of the University of the Philippine Islands established and supported by the Philippine government.

Foreign Medical College Notes

Canada.—The Laval University Medical Faculty, Montreal, received from the Provincial government and from the City of Montreal a grant of $20,000 for teaching purposes.

—McGill University Medical Faculty, Montreal, received during the year endowments to the amount of $217,000 and for new medical buildings a sum of $100,000. The latter sum was donated by Mr. and Mrs. Robert Reford as an endowment for the chair and department of anatomy.

China.—The sum of $3,000 has been contributed by patrons of the University of Pennsylvania to the fund for the University Medical School of Canton, China. Two faculty residences are to be built on the campus of the medical school. The college building of this school was erected at a cost of $20,000, and $100,000 are now being expended for a hospital. The college is conducted under the auspices of the University of Pennsylvania.

—There is now a "Harvard Medical School" located at Shanghai, China. It is said to have been inaugurated under Harvard auspices, and officered by Harvard men. Dr. Eliot, former president of Harvard, is President of the China school, and made a visit to it during his recent trip around the world. Rather than to prepare practitioners, the object of the school is to train teachers who will carry medical progress to the remotest parts of China. The same high grade of medical training will be given as that in the best schools of the United States or Europe. Special attention is to be given to hygiene and public health.

Germany.—It is reported that during the summer of 1912, 2,958 women medical students are enrolled in the German universities as compared with 2,552 the previous year. Of the total this year 1,963 or 66.3 per cent. are enrolled in the ten Prussian universities as compared with 50.8 per cent. of the male students. About 2,500 of these women students are German while the balance, 258, are foreigners.

India.—Grant Medical College is affiliated with the University of Bombay. It was organized in 1845 but not recognized by the University until 1860. A five year course, including a preliminary year in physics, chemistry and biology, leads to degrees of Bachelor of Medicine and Surgery. These degrees admit the holder to practice. From three to five years of practice, including a year's study at a recognized hospital in some particular branch in which a special examination must be passed, is essential to secure the degree of M.D. During 1911-12 the highest number of students was enrolled, 519, and 55 passed the final examination. The college is well endowed, has laboratories for scientific research and gives clinical instruction in a hospital aggregating nearly 500 beds.

—The following table shows the number of students and graduates of the various medical schools of India[1] during the last year:

Colleges and Schools *	Students Enrolled	Passed Final Examination
University of Bombay, Grant Medical College	519	55
University of Calcutta, Med. Coll. of Bengal.	535	43
Punjab University, Lahore Medical College..	167	26
University of Madras, Madras Med. College.	388	15
Agra Medical School.....	301	39
Lahore Medical School.....	263	41
Rangoon, Government Medical School.....	43	10
Medical Schools at Dacca and Dibragarh...	295	72
Royapuram Medical School.....	177	14
Tanjore Prince of Wales School.....	94	6
Vizagapatam, Medical School.....	52	4
Medical School at Poona.....	136	23
Medical School at Ahmedabad.....	139	22
Medical School at Hyderabad.....	51	8
Totals.....	3,160	378

* It is understood that only the four colleges first named are accredited by the Examining Board in England.

Ireland.—Last year the Medical School of Trinity College, Dublin,[2] completed the second century of its existence. Trinity College was founded by Queen Elizabeth in 1590. Funds were raised to the amount of $10,000 a sum equal to about $80,000 at the present day. Although medicine was apparently taught and degrees granted as early as 1616, the Medical School with organized instruction was not established until special medical buildings were erected and formally opened Aug. 16, 1711. For the first fifteen years the matriculations averaged only 4.7 in each year. Following this there was a gradual increase until in 1829 the number reached 90. During 1872 to 1881 a yearly average of thirty-nine degrees in medicine were granted. The present medical building was erected in 1886. Other buildings are the histological laboratory, erected in 1880, and the anatomical, built in 1876. This is said to be one of the oldest and most renowned medical schools of Great Britain.

1. Indian Med. Gaz., June, 1912, p. 238.
2. Brit. Med. Jour., June 8, 1912, p. 1305.

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[*For other information see second page following reading matter*]

SATURDAY, AUGUST 24, 1912

Wrong Cover on Last Week's Journal

Through a peculiar accident, between 500 and 1,000 copies of last week's issue of The Journal were bound with the cover for the previous week. We shall be glad if those who received The Journal in this condition will write us; we will then send them the right cover to paste on.

MEDICAL EDUCATION IN THE UNITED STATES

The tabulated statistics herewith presented (pages 625 to 649) are for the year ending June 30, 1912, and are based on signed reports received directly from the medical colleges, or from other reliable sources. We take much pleasure in acknowledging here the courtesy and cooperation of the various officials of the medical colleges which have made the compilation of these complete statistics possible.

STATISTICS OF COLLEGES

Table 1 (pages 640 to 642) gives the colleges in session during 1911-1912, the population of the city in which each college is located, the number of students, men and women, registered during the year, the number of 1912 graduates, men and women, the number of graduates holding collegiate degrees, the number of teachers for each college, the number of weeks of actual work in the college year, the total fees for each year, the executive officer of the college and the dates of beginning and ending of the next session. The figures in heavy-faced type show the totals by states. Beginning on page 625 are given essential facts concerning all medical colleges arranged by states.

NUMBER OF MEDICAL STUDENTS

The total number of medical students (matriculants) in the United States for the year ending June 30, 1912, excluding special students, was 18,412, a decrease of 1,374 below 1911, a decrease of 3,114 below 1910, a decrease of 3,733 below 1909, and a decrease of 9,730 below 1904, when the highest number of students was enrolled. In fact, it is the lowest number since THE JOURNAL began compiling these statistics in 1900. Of the total number of students, 17,277 were in attendance at the so-called regular colleges, 827 at the homeopathic, and 308 at the eclectic colleges. The attendance at the regular colleges shows a decrease of 1,137 below that of last year and of 2,859 below 1910. In the homeopathic colleges there was a decrease of sixty-three below the attendance of 1911 and a decrease of forty below the total for 1910. The eclectic colleges show a decrease of sixty-three below 1911 and a decrease of forty-seven below 1910. The last of the physiomedical colleges became extinct a year ago.

TABLE 4.—MEDICAL COLLEGE ATTENDANCE

Year.	Regular.	Homeopathic.	Eclectic.	Physio-Med.	Nondescript.	Total.
1880.....	9,776	1,220	830	...	...	11,826
1890.....	13,521	1,164	719	...	...	15,404
1900.....	22,710	1,909	522	...	...	25,171
1901.....	23,846	1,883	664	80	144	26,417
1902.....	24,878	1,617	765	91	150	27,501
1903.....	24,930	1,498	848	149	190	27,615
1904.....	23,602	1,309	1,014	123	234	28,142
1905.....	24,119	1,104	578	114	232	26,147
1906.....	23,116	1,085	644	110	249	25,204
1907.....	22,303	1,089	545	97	202	24,276
1908.....	20,936	891	479	90	206	22,602
1909.....	20,554	899	413	82	227	22,145
1910.....	20,136	867	455	49	19	21,526
1911.....	18,414	890	432	49	...	19,786
1912.....	17,277	827	308	...	...	18,412

The total number of graduates for the year ending June 30, 1912, was 4,483, an increase of 210 above 1911, an increase of forty-three above 1910 but a decrease of thirty-two below 1909. The total this year is 1,264 less than in 1904, when the largest number were graduated. The percentage of graduates to matriculants was 24.7 this year, as compared with 21.6 in 1911 and 20.7 in 1910.

The number of graduates from the regular colleges was 4,206, or 200 more than in 1911, ninety-three more than in 1910 and forty-three more than in 1909. From the homeopathic colleges there were 185 graduates, or thirty-three more than in 1911, two more than in 1910 and twenty-four less than in 1909. The eclectic colleges graduated ninety-two, or eighteen less than last year, but eight more than in 1909.

TABLE 5.—MEDICAL COLLEGE GRADUATES

Year.	Regular.	Homeopathic.	Eclectic.	Physio-Med.	Nondescript.	Total.
1880.....	2,673	380	188	..	..	3,241
1890.....	3,853	380	221	..	..	4,454
1900.....	4,715	413	86	..	..	5,214
1901.....	4,879	387	148	18	12	5,444
1902.....	4,508	336	138	16	11	5,009
1903.....	5,088	420	149	24	17	5,698
1904.....	5,190	371	146	20	20	5,747
1905.....	5,126	276	153	22	23	5,600
1906.....	4,841	286	186	22	29	5,364
1907.....	4,591	225	121	11	32	4,980
1908.....	4,370	215	116	12	28	4,741
1909.....	4,163	209	84	15	44	4,515
1910.....	4,113	183	114	16	14	4,440
1911.....	4,006	152	110	5	..	4,273
1912.....	4,206	185	92	..	..	4,483

Of the 4,483 medical graduates 763, or 17 per cent., were reported to hold also degrees in arts or science, as compared with 16.5 per cent. last year and 15.3 per cent. in 1910. Of the regular school graduates, 17.8 per cent. held baccalaureate degrees, while of the homeopathic

graduates, only 6.5 per cent. and of the eclectic graduates 4.3 per cent., held such degrees. As will be noted by referring to Table 12, of the 763 graduates holding baccalaureate degrees, 141, the largest number, came from Illinois colleges, followed by eighty-five from Maryland, eighty-two from New York, sixty-five from Pennsylvania and sixty-two from Massachusetts. It is expected that in future the percentage of graduates holding collegiate degrees will increase, since a larger number of medical schools are requiring college work for admission.

WOMEN IN MEDICINE

During the past year there were 679 women studying medicine, or one less than last year, a decrease of 228 below 1910, and a decrease of 242 below 1909. The percentage of all medical students was 3.2 as compared with 3.4 last year. There were 142 women graduates this year, or 3.2 per cent. of all graduates. In 1910 there were 907 women students and 157 graduates, while in 1909 there were 921 women students and 162 graduates. Of all the women matriculants, 143 (21.1 per cent.) were in attendance at the two medical colleges for women, as compared with 134 (19.7 per cent.) in 1911, 155 (17.1 per cent.) in 1910, 169 (18.4 per cent.) in 1909 and 186 (22.3 per cent.) in 1908. The remaining 536 (79.8 per cent.) were matriculated in the sixty-four coeducational colleges. From the two women's colleges, there were thirty-two, or 22.5 per cent., of all women graduates while 110, or 77.5 per cent., secured their degrees from coeducational colleges.

TABLE 6.—WOMEN IN MEDICINE

Year.	Total women students.	Percentage of all graduates, both sexes.	Total women graduates.	Percentage of graduates, both sexes.	Women's colleges.	Students.	Percentage of all women students.	Graduates.	Percentage of all women graduates.	Co-ed. schools.	Students.	Percentage of all women graduates.	Graduates.	Percentage of all women graduates.
1904	1,129	4.3	244	4.0	3	183	16.2	56	23.0	97	946	83.8	198	77.0
1905	1,073	4.1	219	4.0	3	221	20.6	54	24.5	96	852	79.4	165	75.5
1906	895	3.5	233	4.3	3	189	21.0	33	14.1	90	706	79.0	200	85.9
1907	928	3.8	211	4.2	3	210	22.6	39	18.5	86	718	77.4	172	81.5
1908	835	3.7	185	3.9	3	186	22.3	46	24.9	88	649	77.7	139	75.1
1909	921	4.2	162	3.7	3	169	18.4	33	20.3	91	752	81.6	129	79.7
1910	907	4.2	157	3.5	3	155	17.1	41	26.1	82	752	82.9	116	73.9
1911	680	3.4	159	3.7	2	134	19.7	36	22.6	74	546	80.3	123	77.4
1912	679	3.2	142	3.2	2	143	21.1	32	22.5	64	536	78.9	110	77.5

NUMBER OF COLLEGES

Since June 30, 1911, seven colleges (mentioned on page 643) have either suspended or have merged into others, one new college has been organized and two others formerly suspended were revived, leaving 116 medical colleges still existing. The number of colleges is now the same as in 1890. It was about that time that the movement toward establishing medical colleges for profit became most marked and the rapid increase in the number of colleges has been paralleled only by the rapid decrease since 1904. There has been a net decrease of fifty colleges since 1904, when there were 166 colleges. Sixty-five colleges have been closed by merger or otherwise since 1904, but in the same time fifteen new colleges were organized, leaving 116 medical colleges which still exist. The regular colleges number 100, a decrease of one since last year. The homeopathic colleges number ten, a decrease of two since last year and the eclectic colleges number six, a decrease of one since last year.

TABLE 7.—MEDICAL COLLEGES

Year.	Regular.	Homeopathic.	Eclectic.	Physio-Med.	Nondescript.	Total.
1880.....	72	12	6	..	..	90
1890.....	93	14	6	..	..	116
1900.....	121	23	8	..	..	151
1901.....	124	21	10	2	2	159
1902.....	121	20	10	3	1	155
1903.....	121	19	10	3	1	154
1904.....	133	19	10	3	1	166
1905.....	129	18	9	3	1	160
1906.....	130	18	9	3	1	161
1907.....	131	17	8	3	2	161
1908.....	123	16	8	2	3	152
1909.....	117	14	8	2	3	144
1910.....	111	13	7	1	1	133
1911.....	101	12	7	..	..	120
1912.....	100	10	6	..	..	116

FEWER BUT BETTER COLLEGES

Of the sixty-five medical colleges which have ceased to exist, thirty-seven were closed by merger and twenty-eight became extinct. It is noteworthy that this remarkable diminution in the number of colleges began following the creation of the Council on Medical Education in 1905, and became more marked following the Council's first classification of medical colleges issued in 1907. The largest number closing was in 1910, when the Council's second classification was published.

TABLE 8.—COLLEGES CLOSED SINCE 1904

Year.	Class A.*		Class B.		Class C.		Totals.		Total Closed
	Mgd.	Ext.	Mgd.	Ext.	Mgd.	Ext.	Mgd.	Ext.	
1905.....	8	1	..	..	..	..	8	1	9
1906.....	..	..	..	..	..	..	..	..	..
1907.....	3	..	3	1	..	3	6	4	10
1908.....	2	..	2	..	1	4	5	4	9
1909.....	3	..	2	..	..	7	5	7	12
1910.....	1	..	3	..	3	6	7	6	13
1911.....	..	..	3	..	1	3	4	3	7
1912.....	2	..	..	..	..	3	2	3	5
Totals...	19	1	13	1	5	26	37	28	65

* Based on the classifications of medical colleges prepared by the Council on Medical Education.

It is interesting to note also that most of the closures of medical schools in Classes A and B were by merger, whereas all but two of the medical schools which became extinct had been rated in Class C.

While the total number of colleges is growing smaller, however, and approaching more nearly the normal supply for this country, it is encouraging to note that the number of high-grade, stronger medical colleges is constantly increasing. In 1904, only four medical colleges were requiring any preliminary education in advance of

the usual high school education; now there are forty-five[1] requiring one or more years of advance college work. The colleges have been remarkably improved also in regard to buildings, new laboratories, better equipment, larger hospital facilities and—most important—more and better full-time, salaried instructors.

LENGTH OF TERMS

The length of term of each college fluctuates somewhat from year to year, but on the whole, during the last twelve years there has been a decided lengthening of college terms. This has reference to the weeks of actual work, exclusive of holidays. Only one college this year reported sessions shorter than twenty-seven weeks, whereas in 1901 fifty-eight reported sessions of this length. Likewise, only one college, or five less than last year, and forty-five less than in 1903, reported sessions of twenty-seven or twenty-eight weeks. Eleven colleges claim courses of twenty-nine or thirty weeks of actual work, thirty-four claim courses of thirty-one or thirty-two weeks, and thirty-seven, the largest number, claim courses of from thirty-three to thirty-four weeks. Of the 116 colleges now existing, ninety-nine, or over 85 per cent., now claim to require from thirty-one to thirty-six weeks of actual work, exclusive of holidays, as compared with 76 per cent. in 1910, 42 per cent. in 1904 and 30 per cent. in 1901. The one college claiming a course longer than thirty-six weeks is a night school; it would require twelve or fourteen years of the usual night-school study, however, to obtain the equivalent of four years of thirty weeks each in one of the better day colleges.

TABLE 9.—COLLEGE TERMS

	23 to 26 weeks.		27 to 28 weeks.		29 to 30 weeks.		31 to 32 weeks.		33 to 34 weeks.		35 to 36 weeks.		Over 36 weeks.	
1901	58	36.5	42	26.4	8	5.0	26	16.4	4	2.5	18	11.3	3	1.9
1902	44	28.4	44	28.4	11	7.1	33	21.3	3	1.9	18	11.6	2	1.3
1903	33	21.4	46	29.9	15	9.7	37	24.0	2	1.3	19	12.4	2	1.3
1904	27	16.3	44	26.5	22	13.3	37	22.3	13	7.8	20	12.0	3	1.8
1905	15	9.4	35	21.8	12	7.5	44	27.5	13	8.1	38	23.8	3	1.9
1906	14	8.7	35	21.7	26	16.1	32	19.9	24	14.9	28	17.4	2	1.3
1907	6	3.7	27	16.8	26	16.1	42	26.1	29	18.0	29	18.0	2	1.3
1908	2	1.3	21	13.8	28	18.4	51	33.6	24	15.8	22	14.5	4	2.6
1909	4	2.3	17	11.6	23	16.4	51	34.9	18	12.3	30	20.5	3	2.0
1910	2	1.5	8	6.0	19	14.3	42	31.5	30	22.6	30	22.6	2	1.5
1911	..	..	6	5.0	16	13.3	37	30.8	32	26.7	28	23.4	1	0.8
1912	1	0.9	1	0.9	11	9.5	34	29.3	37	31.8	31	26.7	1	0.9

TUITION AND OTHER FEES

Special attention is called in Table 1 to the total amount charged by the various colleges for tuition, matriculation, laboratory and graduation fees per annum for each student. In Table 10 the 116 colleges have been grouped according to the amount of fees charged and according to their classification by the Council on Medical Education in Classes A, B or C. Nineteen colleges charge fees of $100 or less per year, seventy-nine charge between $100 and $175, and eighteen charge above $175. Of the nineteen colleges charging $100 or less, ten, or over half were listed among Class A (acceptable) colleges[2] by the Council on Medical Education, three were among Class B colleges, and only six of them are found among the Class C colleges. Among the ten Class A colleges having these low fees are the schools of medicine of the state universities of Colorado, Iowa, Mississippi, Missouri, North Dakota, South Dakota, Texas and Utah.

TABLE 10.—COLLEGE FEES

Total Fees.	Number of Colleges.			
	Class A.*	Class B.	Class C.	Total.
$ 50 or less	1	1	..	2
50 to $ 75	7	1	2	10
75 to 100	2	1	4	7
100 to 125	11	8	15	34
125 to 150	13	4	10	27
150 to 175	10	6	2	18
175 to 200	9	2	..	11
200 or above	7	..	..	7
Totals	60	23	33	116

* Based on the latest classification of medical colleges prepared by the Council on Medical Education.

On the other hand thirty colleges listed by the Council in Class C charge fees of over $100 per year for each student. This clearly refutes the assertion made by some inferior colleges that they are needed for the sake of "the poor boy who wants to study medicine." Although fifty colleges listed in Class A charge fees ranging from $150 to $275 per year for each student, the actual expense for teaching that student in these colleges amounts to much more than that.

COST OF MEDICAL INSTRUCTION

From statements from ten medical colleges showing the amount actually expended for conducting those colleges during one recent session, Table 11 has been prepared. For each college the total expenditure is shown, the average cost per student, and the average amount received in fees from each student. One college, it will be noted, expended $1,177 for each student, whereas that student gave in return only $153. The average shows $479 expended per student, whereas each paid in return only $125. Still, among these ten medical schools are some which are not richly endowed. These figures point to the conclusion that medical schools must

TABLE 11.—COST OF TEACHING MEDICINE

Actual cost for one year in ten medical schools. Average enrolment, 161.

Medical School.	Total Expenditure.	Average Expended, Per Student.	Average Amount Rec'd. Per Student.
1	$ 43,520	$ 145.50	$ 120.00
2	33,295	283.00	75.00
3	70,900	437.70	30.40
4	128,380	1,177.80	153.10
5	56,936	340.00	118.85
6	51,473	817.50	170.00
7	102,383	559.30	127.85
8	27,956	256.50	145.50
9	20,575	571.50	133.70
10	75,075	201.25	177.85
Average	$ 61,056	$ 479.00	$ 125.24

1. List shown on page 636.

2. See list on page 639.

have more income than is derived from students' fees, in the form of either state aid or private endowment.

The discrepancy between the expenditure and income will be less marked as the number of medical schools reaches more nearly the normal supply. For practically the same amount now being expended several of the medical schools referred to could teach several times as many students as at the present time. For example, the school which expended $1,177 per student could teach 500 students where now it teaches only about 100. With the larger number the proportion expended per student would be reduced to about $257. It is, therefore, clearly in the interests of economy as well as in the better training of the future practitioners of medicine that there be a further reduction in the number of medical colleges in this country. The reduction is particularly beneficial, furthermore, since it is being brought about by the closing of the low-grade colleges.

COLLEGES, STUDENTS AND GRADUATES BY STATES

Illinois has usually had the largest number of medical colleges, but now the first place is held by New York, where there are eleven colleges. Missouri has nine and Illinois ties with California for third place each having eight colleges. Illinois still has the largest number of students enrolled, however, having 2,392 matriculants last session, followed by New York with 2,161, Pennsylvania with 1,686, Maryland with 1,337 and Tennessee with 1,327. In regard to the graduates the same relative position obtains except that Pennsylvania has a larger number than New York. Of graduates holding baccalaureate degrees, Illinois has the largest number, 141, followed by Maryland with eighty-five, New York with eighty-two, Pennsylvania with sixty-five and Massachusetts with sixty-two.

TABLE 12.—STUDENTS AND GRADUATES, TOTALS BY STATES

State.	Medical Schools.	Students.		Graduates.		Graduates with B.S. or A.B.
		Men.	Women.	Men.	Women.	
Alabama	2	220	..	66	..	7
Arkansas	1	143	2	51	1	1
California	8	389	52	99	5	20
Colorado	1	110	8	38	1	4
Connecticut	1	63	..	29	..	3
Dist. of Col.	3	412	5	94	2	15
Georgia	5	817	4	192	2	12
Illinois	8	2,392	160	380	28	141
Indiana	1	145	10	43	2	9
Iowa	2	166	10	54	2	4
Kansas	2	106	6	22	1	9
Kentucky	1	370	..	124	..	..
Louisiana	1	321	..	104	..	22
Maine	1	83	..	11	..	5
Maryland	5	1,337	41	322	9	85
Massachusetts	3	725	45	176	14	62
Michigan	3	501	26	141	8	31
Minnesota	1	173	10	56	1	23
Mississippi	1	102	1	14	..	..
Missouri	9	809	25	216	7	27
Nebraska	3	275	15	62	5	12
New Hampshire	1	30	..	9	..	2
New York	11	2,161	65	421	8	82
North Carolina	4	312	2	53	1	7
North Dakota	1	12	1	..	..	..
Ohio	6	725	27	196	6	51
Oklahoma	1	47	4	9	1	..
Oregon	2	150	7	29	..	3
Pennsylvania	7	1,686	121	472	34	65
South Carolina	1	163	1	64	1	13
South Dakota	1	9	..	..	..	..
Tennessee	6	1,327	8	330	2	24
Texas	4	345	18	96	1	9
Utah	1	12	..	..	..	..
Vermont	1	176	..	47	..	1
Virginia	3	484	..	90	..	11
W. Virginia	1	19	..	..	..	..
Wisconsin	3	340	5	60	..	3
Totals	116	17,733	679	4,340	142	763

HOME STATES OF MEDICAL STUDENTS

Table 2, on pages 644 to 647, shows from what states the students come who were in attendance at each medical college during the session of 1911-1912. The influence of the proximity of the medical school is seen in the fact that states having medical colleges contribute more students in proportion to the population than those which have no colleges. This is shown by the dark zone of figures running diagonally down the page. A comparison of this table with the large tables based on state board examinations[3] which show the distribution of the alumni of each college is interesting. The college which has widely distributed alumni usually has a student body from an equally large number of states.

The state furnishing the largest number of students this year was New York, with 2,109. Pennsylvania contributed 1,529 and Illinois 1,338. The next states, in the order of the number of students contributed are: Ohio, 818; Massachusetts, 712; Texas, 642; Missouri, 556 and Tennessee, 525. Four states had less than twenty each, these being Wyoming, fourteen; Arizona, nine; New Mexico, eight, and Nevada, three. There were eighty-six students from Hawaii, Porto Rico and the Philippine Islands, and 600 students from foreign countries.

In Table 3, page 648, the students enrolled in each college are shown by classes. This permits one to see whether the attendance at each college is increasing or decreasing. The total attendance for the first year in all colleges shows an increase over the second-year class of nearly a thousand students. More interesting, however, is the study of this table in the light of higher entrance requirements which have been adopted during the last two or three years by a large number of colleges.[4] The effects of these higher requirements are shown in the figures in two ways: smaller enrolments for the colleges which have adopted the higher requirements and larger enrolments for the colleges which have retained the lower requirements. The benefit in larger classes for the "stand-pat" colleges can be only temporary, however, so decided is the trend for the higher standards. Already nine state licensing boards have gone on record for the higher requirements and others are contemplating similar action. The House of Delegates of the American Medical Association[5] in June, adopted a report instructing the Council on Medical Education to omit from the acceptable list any medical college which after Jan. 1, 1914, does not require for admission in addition to the four-year high-school education, at least one year of

3. THE JOURNAL A. M. A., May 25, p. 1584.
4. See list on page 636.
5. THE JOURNAL A. M. A., June 15, p. 1911.

higher preliminary work, including courses of college grade in physics, chemistry and biology. The medical profession of the United States, therefore, has gone on record for entrance qualifications which will bring medical education in this country more nearly on a par with the requirements of other countries.

Another development of the year was the action of the New York Education Department in requiring that after Oct. 1, 1912, no medical college will be registered as being up to the required standard which does not have at least six salaried full-time teachers. This is in support of the action taken by the Council on Medical Education over two years ago. In fact, one of the chief improvements during the year has been along this most important line—the securing of expert, full-time teachers. Buildings, laboratories, equipment and clinical material are important and essential if there are good teachers to make use of them. Without such teachers, however, their possession is of less consequence. Given these expert teachers, the chances are that they may be relied on to secure the needed laboratory equipment, to develop working medical libraries and museums, and to attract dispensary and hospital patients. While there have probably been fewer changes of a spectacular nature during the last year as compared with previous years, nevertheless the changes within the existing colleges have been even more marked. The campaign for improvements in medical education, therefore, is still being actively carried on.

BODY TEMPERATURE AND DAILY ROUTINE

There is probably no single professional activity which engages the physician so frequently as the determination of body temperature. The daily rhythm of the temperature record in healthy man is now a familiar fact of science. The maximum temperature is reached in the late afternoon or evening, the minimum in the early morning hours, usually between two and six o'clock. The range of this diurnal variation may exceed one degree; hence the interpretation of small variations in the temperature records of patients must be made with a due appreciation of the normally occurring changes of which we have just spoken.

But what is the real significance of these diurnal rhythms and why are they so fixed and characteristic? We are accustomed to think of the body temperature as an unvarying constant so long as morbid processes are excluded from the performances of the organism. Yet this is in fact far from accurate. All muscular and glandular activity is attended with heat production; and the compensatory regulating processes of the organism are by no means so speedy and effective as to produce an instantaneous adjustment to new conditions of heat production or heat loss. The simple act of arising from bed and dressing—a performance which scarcely gives the impression of any profound muscular effort or expenditure of energy—is ordinarily adequate to cause a rise in temperature clearly detectable by accurate clinical measurement. After vigorous exercise the elevation in body temperature may become quite conspicuous despite the vigorous functions which are at once called into play to dispel the waste heat.

Inasmuch as the diurnal rise and fall in temperature ordinarily coincides, in a sense, with the incidence of day and night, and as these are in turn characterized by comparative predominance of activity and rest respectively, the daily rhythm might be assumed to find its explanation in these features. There are, however, numerous factors which might affect the body temperature, namely, muscular exercise, mental effort, ingestion of food, light, the temperature of the environment, and sleep. Even these have not been regarded as sufficient to account for the daily fluctuation, so that some have been inclined to assume the existence of a fixed periodicity, persisting under all conditions, finding its expression in the temperature rhythm and remaining independent of the outside influences. Seasonal and lunar changes have not infrequently been associated with biologic phenomena, and the apparent fixity of the temperature rhythm has often been grouped with these somewhat mysterious experiences. An obvious way to detect certain factors assumed to be primarily involved in the daily temperature rhythm would be to alter the routine of the individual—to turn his night into day in respect to habits of waking and sleeping. It is surprisingly difficult to do this with success, so deeply do our habits of work and repose become engrafted on us. Our typical night workers—bakers, nurses, watchmen, etc.—rarely present an ideal instance of perfect inversion of the day and night routine of their fellowman. Lindhard[1] did succeed in reversing the routine of the members of the ship's company in the Danish Arctic expedition during the long polar night. The curves of the temperature variation followed the changes in work and mode of living. The astronomic division of day and night was without importance and the debated possibility of an inherited form of temperature curve or a cosmic cause for the rhythm was put out of question.

A quite different and thoroughly ingenious method of determining whether the diurnal variation is due to the combined effects of influences, such as exercise, etc., which are known to act on it, or whether it is present unrelated to these, has been employed in recent years independently by three physiologists.[2] All of them shifted the incidence of time independently of their routine of activity by rapidly changing their longitude in extensive journeys. Thus Gibson altered his time eleven hours in a trip from New Haven to Manila; Simpson traveled from Edinburgh to Winnipeg. In every instance there was an immediate adjustment of

1. Report of the Spanish Expedition to the Northeast Coast of Greenland (1906-08), 1910, xliv, 1.

2. Gibson, R. B.: Am. Jour. Med. Sc., 1905, p. 1048. Osborne, W. A.: Proc. Physiol. Soc., Jour. Physiol., Jan. 25, 1908. Simpson, S.: Tr. Roy. Soc. Edinburgh, 1912, xlviii, 231.

the temperature rhythm to the changed routine day by day. The rise and fall occurred at practically the same period of local time throughout the journeys. These observers, be it noted, literally turned their day into night by the shift which the difference in local time of two widely separated stations occasioned.

Simpson has found that the rhythmic temperature curve can almost be obliterated by continued stay in bed and enforced muscular rest during the whole twenty-four-hour period, with abstinence from food during the same time. Any temperature rhythm inherent in the body might be expected to show itself under these conditions and, if persistent, to be carried from one locality to another. This was found not to be the case. It seems settled, therefore, that the diurnal variation of body temperature is determined by the conditions, such as rest and activity, imposed on the body, and is not an expression of any inherent established periodicity.

THE MEDICAL MAN AND RESEARCH

In a recent address on "Research Foundations in Their Relation to Medicine"[1] the well-known neurologist of the Wistar Institute, Prof. H. H. Donaldson, has expressed certain views which deserve to be heralded in medical circles beyond the immediate audience of graduates in medicine to which they were originally addressed. He has emphasized the fact that the programs of the large research foundations imply the hope that by such endowments new facts and new points of view fundamentally important to medicine may be discovered. Many of these establishments serve in a way to mediate between the problems of practice and the findings of science. The popular mind is constantly alert for some new application of science to the work of the world or the needs of the arts. Accordingly there is an ever-present tendency to place undue importance on the purely practical aspects of all research.

The worker who is engaged in the actual pursuit of scientific investigation realizes well enough that there is no essential distinction between so-called practical and theoretical knowledge. He would, indeed, be rash who would foretell where one type of contribution merges into the other. But with the laity the search for the unknown finds little encouragement except when it is attended by some palpable result of immediate application. Hence the pressure which many of our institutions feel to present something that will satisfy this unfortunate and mistaken public demand.

Precisely here the medical man of to-day has an opportunity and a duty. Trained in the school of modern science, he should have acquired an appreciation of the unhampered search for new knowledge which is so rarely intelligible to the community at large. He is more or less familiar with the aims of the research worker and has some understanding of what these endeavors have contributed to the world. He should defend the effort and help to spread the propaganda. We believe that the attitude of the practitioner toward certain features of medical research is, in general, wholesome and helpful in so far as these features involve relations to the problems of clinical medicine. There is, however, another class of problems which demand solution no less than some of the more obvious questions. These more subtle problems involve the "why" and "how." They are harder to answer; they appeal to fewer investigators, and not many men are adequately equipped to attack them. As Donaldson has said, because the men who can do this latter kind of work are relatively rare, even among investigators, because such work can have rational appreciation from a limited group only, and because knowledge of this sort is sure to become the basis for many applications in the future, it behooves us all to see to it that we foster such investigators — the most valuable of our natural resources. When a mistaken popular notion arises as an obstacle to progress we must help to remove it.

It has often been said that research is an attitude of mind. This is something different from the mysterious features which are sometimes attributed to it. The spirit of research is attainable, even if at times it seems remote. Quoting Donaldson: "A man may have little leisure and trifling resources, and may never have published; but if he examines the world in a questioning spirit, if he carries with him not only conclusions, but the observations on which they rest, if he refuses to pound square facts into the round holes that he happens to have in hand, he has attained illumination."

1. Donaldson, H. H.: Research Foundations in Their Relation to Medicine, Address at the Graduation Exercises of the Yale Medical School, Science, July 19, 1912.

LIGHT THROWN ON THE CAUSE OF TYPHOID BY VACCINATION WITH LIVE CULTURES

It is now thirty years since Eberth first described the *Bacillus typhosus* and almost thirty since Gaffky isolated the same organism in pure culture. Yet, though the study of the typhoid bacillus is almost universal in laboratories and though many investigators are engaged in clinical and epidemiologic studies of the disease, experimental proof that the typhoid bacillus is the specific cause of this infection has been scant. In view of this apparent lack of advance many, even in this day, question the specific etiologic agency in typhoid fever of the bacillus described by Eberth. Recently work has appeared the results of which show that this skepticism is not justified.

Grünbaum,[1] in 1906, made attempts to infect chimpanzees with typhoid by feeding them pure cultures and a portion of the stool from a case of the disease; but his results, while suggestive, were not conclusive.

1. Grünbaum, A. S.: Some Experiments on Enterical Scarlet Fever and Measles in the Chimpanzee, Brit. Med. Jour., April 9, 1904, p. 817.

In March, 1911, Metchnikoff and Besredka[2] presented a paper on experimental typhoid fever in the chimpanzee, reporting work of great interest and importance. With the history of hog cholera in mind these investigators, instead of using pure cultures of the typhoid bacillus, endeavored to infect a chimpanzee with the feces from a case of typhoid fever. The chimpanzee, eight days after it had ingested, with food, fecal material containing an abundance of typhoid bacilli, developed typhoid. The appearance of diarrhea, the presence of typhoid bacilli in the blood and the development of specific agglutinins in the blood-serum left no doubt as to the result and clearly showed the susceptibility of the chimpanzee to infection with typhoid fever by feeding.

Metchnikoff and Besredka were unable either to infect or to vaccinate apes by the feeding and the injection under the skin of the fluid obtained by the filtration of typhoid stools. Hence these authors conclude that the typhoid bacillus, and not a filterable virus, is the etiologic agent in typhoid fever. They find that the lower monkeys are only exceptionally susceptible to typhoid, and that rodents, such as the rabbit and guinea-pig, are not at all susceptible to infection by feeding.

In the same paper and also in a later one[3] they report attempts at protective inoculation by various means. They found that neither killed cultures nor their autolysates protected chimpanzees against infection with typhoid fever, but that vaccination with living cultures produced an immunity apparently as definite as that produced by an attack of the disease. Vaccination with non-sensitized cultures produced an intense local and general reaction, while sensitized cultures caused only a feeble local and almost no general reaction; the two measures appeared to confer equal immunity to infection.

The work reported by Metchnikoff and Besredka fulfils for the first time the postulates of Koch as to the etiologic relation of the *Bacillus typhosus* to typhoid fever, discredits the theory of a filterable virus in the disease, shows the possibility of absolute protection by vaccination with living cultures, and emphasizes the importance of not relying on vaccination with killed cultures to the exclusion of all other precautionary measures.

More recently Metchnikoff and Besredka[4] have reported the results of the vaccination of 745 persons with sensitized living cultures of the typhoid bacillus. The local reaction in almost all of the cases was extremely slight, and rarely was there any general reaction. Bacteriologic examination of sixty-four of those vaccinated failed to show typhoid bacilli in the blood, urine or feces. It would seem probable, therefore, that persons vaccinated with sensitized typhoid bacilli do not become either "carriers" or infected with typhoid. This large series of vaccinations would appear to show the safety of the use of sensitized cultures of typhoid bacilli as a preventive of the disease. If the further use of this method of vaccination shows it to be as harmless as believed by Metchnikoff and Besredka, apparently an important advance in protective inoculation has been made over the use of killed cultures. The latter method, it will be recalled, failed to protect chimpanzees against experimental infection with typhoid fever in the experiments of Metchnikoff and Besredka, while vaccination with sensitized cultures afforded complete protection.

2. Metchnikoff, Elie, and Besredka, A.: Recherches sur la fièvre typhoïde expérimentale, Ann. de l'Inst. Pasteur, March 25, 1911.
3. Metchnikoff, Elie, and Besredka, A.: Des vaccinations antityphique, Ann. de l'Inst. Pasteur, December, 1911, p. 861.
4. Metchnikoff, Elie, and Besredka, A.: Sur la vaccination contre le fivère typhoïde, Semaine méd., July 24, 1912, p. 355.

PREVENTIVE METHODS AGAINST DIPHTHERIA

A great fall in the mortality-rate from diphtheria followed the inauguration of the general use of diphtheria antitoxin in 1894-1895. A death-rate of 100 to 150 per hundred thousand of population was soon replaced by one of seventy and sixty, and during the last few years the rate per hundred thousand in the principal cities of the world has been from thirty to forty in some, and less than one in others. The marked fall in death-rate which occurred during the first years after diphtheria antitoxin came into use must reasonably be credited to that agent. During more recent years the death-rate has tended to fluctuate but little in individual cities, and in many no downward tendency is noted.

Abel[1] has recently shown by statistics that the death-rate from diphtheria in most German cities is two or three times that of most other European cities. In 1907, eight German cities had a diphtheria death-rate of 1.48 to 3.17 per ten thousand, while during the same year, of eighteen European cities outside of Germany, in thirteen the rate fell below 1.5 and in only two was it as high as 2.0, except in Christiania, in which it was 4.71. In Brussels the rate was only 0.15. Abel calls attention to the fact that in Germany there are now more deaths from diphtheria than from scarlet fever. After showing graphically that Germany is not controlling diphtheria so well as her neighbors, he proceeds to indicate the reasons for the failure and to suggest remedies, many of which might be adopted with benefit by some American cities.

Abel emphasizes the fact that the practitioner, whose chief interest is naturally in the cure of the sick, since he is familiar with the remarkable curative power of antitoxin and has confidence in it, is less likely than is an official health physician to lay stress on the prevention of infection. Therefore the regulation and instruction of the patient and his family in regard to the prevention of the spread of the disease should be delegated to properly qualified health officers. The cooperation of the practitioner and the report by him of every suspicious case, that bacteriologic examinations may be made, is of the utmost importance.

1. Abel: Centralbl. f. Bakteriol., Orig., 1912, lxiv, 229.

The spread of the disease takes place through the agency of sick or convalescent diphtheria patients or bacillus-carriers who have never been appreciably sick, either by direct transfer or by means of intermediate carriers, as milk, etc. Hence, it is imperative that persons who harbor the bacilli be effectively isolated until repeated bacteriologic examinations have shown the secretions free of bacilli. Prophylactic injections of serum are useful to check an epidemic in a family, school or institution, but are useless as a measure for preventing the spread of the disease to uninfected persons. Whenever proper isolation cannot be carried out in the home, the patient should be placed in a suitable hospital.

Terminal disinfection is to be performed only when danger of infection is removed as shown by proper cultures. To disinfect a house which contains a bacillus-carrier is to give a false sense of security to the family and to their friends. When diphtheria bacilli remain a long time in the secretions, animal tests for virulence, as suggested by Kolmer,[2] should be made. This measure will secure the release of many patients from a long and needless quarantine.

The method by which Abel and other German writers attempt to stimulate interest by calling attention to the high mortality from diphtheria in Germany, as compared with other European countries, might be adopted with advantage in America. In 1911 the death-rate from diphtheria in New York was 2.39 and in Chicago 3.91. These figures are about on a par with those of German cities, and do not compare at all favorably with those of the cities of European countries aside from Germany. American cities have not generally appreciated the economic aspect of prophylaxis of disease.

2. Kolmer: Jour. Infect. Dis., 1912, xi, 56.

Current Comment

CHICAGO'S NEW MILK ORDINANCE

Reference has heretofore been made to the unprotected condition of the milk-supply of the city of Chicago. This condition came about through the enactment by the Illinois legislature of a law prohibiting the requirement of the tuberculin test of cows which are the source of the milk-supply of cities, and the defeat of an ordinance in the city council providing for the inspection of dairies and the pasteurization of milk from the dairies not coming up to the requirements of such inspection. The defeated ordinance, in addition to other requirements, provided that milk should be labeled either "inspected" or "pasteurized." This ordinance was defeated largely through the influence of the so-called small dealers, who insisted that it would operate wholly in favor of the large distributors of milk. The situation was particularly unfortunate in that it left the milk-supply of a large city in a practically unprotected condition during the greater part of the warm season; its effects are demonstrated in the report of the health department of the city, which shows that notwithstanding a cool season, the bacterial count of hundreds of specimens of milk is exceedingly high this season as compared with previous seasons under better legal restrictions, and that the death-rate among infants is higher than in 1911. After a short but vigorous campaign on the part of the subcommittee of the health committee of the council, and citizens through a citizens' committee, provided for at a public meeting, a slightly modified ordinance was passed by the council last week. The ordinance now provides for inspected and pasteurized milk, each of which must be so labeled. Inspected dairies must have scores of sixty-five or more on equipment and methods. Cows must be inspected by a competent veterinarian and the milk must be maintained at a temperature not above 60 degrees at first and at a later period, 55 degrees. The score of the dairies producing inspected milk must also later be raised to seventy. Milk coming from dairies scoring fifty-five points or less must be pasteurized by an approved efficient pasteurizer and by efficient methods. In addition to the objections of the small dealers, one of the particular objections raised by councilmen voting against the ordinance was the question of pasteurization. When they were made acquainted with the opinion of authorities at the present time on the effects of pasteurization, this objection was overcome. The objection of the small dealers to the ordinance was likewise not well founded, as in reality the ordinance places all dealers on an equal footing with regard to the matter of handling inspected or pasteurized milk. The new ordinance is a fairly good one and may be improved as the necessity for such improvement is shown. It embodies the recognized foundation principles for the production of safe milk-supplies for cities—inspection of cattle, equipment and methods, conditional pasteurization, and the maintenance of the proper temperature. The standards established, however, are really too low.

COUNTY PUBLIC HEALTH OFFICIAL

In Fulton County, Ga., it has been proposed to create an official with the title "Doctor of Public Health," whose duties would be considerably broader than those of the ordinary county health officer as he now exists in many states. The Atlanta *Journal*, in commenting on this proposal and the lack of enforcement of the present inadequate health laws of that state, says:

> We have delivered ourselves of certain admirable opinions [health statutes] and have then left them to take care of themselves. It is for the purpose of making these statutes and regulations really count for the daily benefit of all the people that the office of Doctor of Public Health has been proposed. Such an official would be definitely responsible for sanitary conditions throughout Fulton County. He would regularly inspect all sources of water-supply, sewage and garbage disposal, public buildings and premises, with particular reference to the schools; he would be alert to discover and check every possible source of contagion; he would see to it that all dairies, bakeries and factories where food products are made or dispensed observe the laws for the public's protection. The work of such an official would be far more than merely corrective; it would be constructive and educational.

We understand that in one or more counties of South Carolina such an office has been created with the title of County Superintendent of Health. The idea of having

in each county a health official who would devote his whole time to the different aspects of public health and sanitation is a good one. Much more effective work could be done by such an officer working in the circumscribed area of a county than by the occasional or spasmodic efforts of the ordinary county health officer or by the more widely distributed and attenuated efforts of the present state health boards. Some such plan is undoubtedly to be a development of the near future in dealing with the important question of public health and sanitation. Ultimately, when the public has become educated to the importance of the physical welfare of human beings, we shall have county, state and national departments of health, all cooperating.

THE FIRST ESSENTIAL IN THE TREATMENT OF THE SICK

In the treatment of human ailments, the matter of first importance to the conscientious physician is the diagnosis: "What is causing the trouble?" On the answer to this question depends the treatment, no matter whether the "doctor" is a regular physician, an eclectic, an osteopath, a homeopath, a chiropractic, a Christian Scientist, a mental healer or what not. The first essential is the diagnosis; and unless the "doctor" is sufficiently well trained in the fundamental medical sciences to make a diagnosis, he is not qualified to treat the patient intelligently by any method whatever. Treatment is certainly of great importance, and from the patient's point of view is doubtless the most essential point. But without a knowledge of the disease — of the actual condition — any treatment would be pure guesswork, unscientific and as liable to do harm as good. These fundamental facts and principles are so often ignored in discussion of sectarian cults and fads that a recent, clear decision[1] by the United States Supreme Court is most encouraging. In a discussion of osteopathy the court made the following statement:

> An osteopath professes to help certain ailments by scientific manipulation affecting the nerve centers. It is intelligible, therefore, that the state should require of him a scientific training. He, like others, must begin by a diagnosis. It is no answer to say that in many instances the diagnosis is easy—that a man knows it when he has a cold or a toothache. For a general practice science is needed.

At the same time the court distinguishes between osteopaths and nurses and masseurs in the following statement:

> An osteopath undertakes to be something more than a nurse or a masseur, and the difference rests precisely in a claim to greater science, which the state requires him to prove. The same considerations that justify including him (under the requirements of the practice act) justify excluding the lower grades (nurses and masseurs) from the law.

The court therefore has pushed aside the masses of argument regarding the "rights" of this, that or the other medical sect, and has revealed the real point at issue—the necessity for sufficient fundamental knowledge of the human system to qualify one to make a diagnosis. The court emphasizes that in order to make a diagnosis the practitioner of osteopathy as well as the physician must have had a scientific training. A scientific training is particularly essential since many diseases to be successfully treated require scientific methods of diagnosis. For example, the successful use of serum in the therapeutic or prophylactic treatment of a disease, such, for instance, as diphtheria, requires a positive knowledge of the particular form of bacteria causing the disease; this knowledge can be gained only by the use of the microscope and by scientific laboratory methods. The same may be said regarding malaria, syphilis and other diseases which can be positively diagnosed by scientific methods only. Mere guesswork in the diagnosis of such diseases should no longer be tolerated. This scientific training is essential for every practitioner of the healing art regardless of the "school" to which he may belong or the particular "methods" of treatment which he may profess to use. The duty of the state, therefore, is to provide an educational qualification which will guarantee that every licensed practitioner shall be competent to make an intelligent diagnosis. Hence, separate boards and special educational standards for certain cults, instead of being essential, are eminently unfair, and not for the best interest of the public. Certainly the public has the right to expect that only those who are competent will be given the state's endorsement, conferring on them the right to treat human ailments.

1. Ira W. Collins vs. State of Texas (U. S.), 32 S. C. Rep. 286, THE JOURNAL A. M. A., August 3, p. 392.

STATE LICENSE EXAMINATION FEES

So far as we have been able to learn, no other civilized country exacts so little of those who seek the right to practice medicine as do the various states in this country. This is true, not only with regard to educational qualifications, but also and particularly with regard to fees charged. Some of the state examining boards argue the impossibility of requiring practical laboratory and clinical tests at these examinations or of employing experts to conduct them, because of insufficient funds. The enforcement of more effective measures for testing the qualifications of those who desire to practice medicine, therefore, demands a decided increase in the finances of the licensing boards, and unless these finances can be provided generously by state appropriations—the better plan—they must come from the fees of applicants. In the various states at the present time the fees charged range from $10 to $25, the majority having the lower fee. In other countries the fees are very much higher. In the various provinces of Canada, the fee ranges from $75 to $200. In England, according to Mr. Hallett,[1] the fee charged each applicant is about $210, while in the various South American countries the fee, at least for foreign practitioners, ranges from $400 to over $600. In other countries, furthermore, examinations are not necessarily conducted by the regular board members, but by medical practitioners who are expert examiners in the various branches, and who are especially employed for the purpose. In England, for example, according to Mr. Hallett,[2] ten physicians, ten surgeons and nine obstetricians are appointed as examiners for a term of four or five years, and it has never been found difficult to keep

1. Hallett, F. G.: THE JOURNAL A. M. A., March 16, p. 769.
2. Ibid., p. 762.

the positions filled from among the ablest physicians and surgeons of England. In fact, it is looked on as a high honor to be asked to serve as an examiner. Considering, therefore, the great need in this country of more effective methods at state license examinations and the increased cost of the examination by the use of such methods, it is quite clear that a generous state appropriation should be made for the purpose. Otherwise a decided increase in state license fees is both necessary and justifiable.

SPURIOUS FOREIGN CREDENTIALS

Judging from investigations now being made by the biographical department of the Council on Medical Education there are between three and four hundred physicians practicing medicine in this country under spurious foreign credentials. The department has been securing an official check on those practicing in this country who claim graduation from foreign medical schools, with the astounding result that from one-fifth to one-fourth of these "doctors" are reported as not having graduated from the institutions claimed. Actual graduates of foreign medical schools, such as those of Edinburgh, Berlin and Vienna, should doubtless be given the privilege of obtaining the license to practice medicine in this country, since these institutions have long been recognized as sources of thoroughly qualified physicians. Nevertheless no foreigner, whatever his claim, should be registered until his credentials have been carefully verified. There needs to be more care taken to prevent charlatans from masquerading under spurious credentials as graduates of recognized foreign medical schools. Some of our states in the past have been only too lenient with the crooks at home; there is certainly no reason for letting down the bars for those from abroad.

SOCIAL LIFE OF THE MEDICAL STUDENT

Much attention has been given in recent years to the educational qualifications of the medical student and much has been written regarding the best methods of instilling into him the required amount of medical knowledge, but practically nothing has been said or done regarding his social life during the long four years of his medical course. The plea of Dr. J. Collins Warren[1] for suitable dormitories and other provisions for the student's social life therefore is worthy of careful thought. Says Dr. Warren: "The medical student, unlike the college undergraduate, is drawn toward the great centers of population and, therefore, unable to enjoy those advantages which time is constantly showing are of so much importance to the moral as well as the physical make-up of the member of the academic community. The medical student is usually tucked away in some Latin quarter, or its equivalent, situated in that part of the city where a great hospital usually finds its home. He has to live in unfavorable surroundings, and his means often do not permit him to indulge in more luxurious quarters than a hall bedroom." Thus, as a rule he is in insanitary surroundings and often exposed to contagious diseases. "And it is this particular class of young men to whom the learned faculty preach about the laws of health." With the hard work required to master the course laid down by the average medical college, it is clear that much depends on the student's surroundings, his habits, his food, his recreation and his companions. Nevertheless, along these lines the medical student, often for the first time away from home influences and in a large city, is left mercilessly to shift for himself. So while millions of dollars are being spent on architecturally beautiful buildings and on marvelously equipped laboratories, is it not time that more attention be paid to the social and physical welfare of those for whose training so much has been expended? The student needs a medical training, surely; but of what value is that training if he leaves the institution a physical or moral wreck? Along with the progress being made in other phases of medical education the social aspect of the medical student's life should also receive some attention.

1. Warren, J. Collins: Boston Med. and Surg. Jour., June 13, 1912, p. 875.

Medical News

COLORADO

Garbage for Hogs.—The board of supervisors of Denver has passed an ordinance requiring that pork from garbage-fed hogs be so labeled wherever exposed for sale.

The Health of Denver.—The annual report of the health department of Denver shows a death rate of 16.04 per 1,000 and records the death of 2,025 males and 1,399 females. Pulmonary tuberculosis led in the death causes, pneumonia was second, nephritis third and cancer fourth. The local mortality from diabetes is reported to have doubled within the last five years. The chief increases are in the deaths from diphtheria and scarlet fever, while deaths from measles and whooping-cough decreased in number.

ILLINOIS

Chicago

Provisions of the New Milk Ordinance.—The City Council passed a new milk ordinance August 14, taking effect August 27, which contains the following provisions: Two grades of milk are provided for—"inspected" and "pasteurized." Inspected milk may be produced only in dairies inspected by the health department and receiving a department permit subject to the condition that every case of contagious disease in connection with the dairy shall be reported at once. Permits will be issued only to dairies to which department inspectors give scores of 65 or more points out of a possible 100 on equipment and methods. These points cover the condition, health, comfort, feeding and watering of the cows, the condition of the milk-room, stable and utensils and the methods of handling the cows and the milk from its first production to its storing and its transportation. Before June 30, 1913, the producers must file certificates showing their cows have been inspected by a competent veterinarian and are free from tuberculosis and other infectious diseases. Rules are prescribed for equipment and methods as a basis for the scoring. Milk produced in conformity with standards slightly lower than these, from dairies scoring at least 55 points and under less stringent regulations must be pasteurized. The efficiency of the pasteurizer must be approved and in case of dispute this question is left to arbitration between the owner or operator and the department. All milk coming into Chicago must be kept at a temperature at least as low as 60 degrees, and after June 1, 1914, at a temperature not higher than 55 degrees. On Jan. 1, 1915, the score for dairies producing inspected milk is raised to 70. Maximum bacterial counts for both grades of milk are established. No milk failing to meet the requirements of one of these two grades will be permitted on sale in Chicago.

MAINE

Personal.—Dr. Adam P. Leighton, Jr., has recently returned from a stay of a year abroad and has reopened his office in Portland.

Hospital and Sanatorium Notes.—A new building is being constructed for the Portland charitable dispensary.——Dr. Francis J. Welch, Portland, has recently opened a private sanatorium in East Parsonsfield for the treatment of tuberculosis.——Dr. Philip H. S. Vaughan has opened a private sanatorium at Yarmouth for the treatment of neuropathic and psychopathic diseases.

NEW JERSEY

Typhoid at Woodbury.—The epidemic of typhoid fever at Woodbury has not abated and up to July 23, there had been eighteen cases and one death.

Typhoid at Moorestown Traced to Carrier.—The local and state experts, who have been investigating the epidemic of typhoid at Moorestown, declare Ellis Kensler, superintendent of the David Roberts dairy farm, to be a typhoid carrier. Up to August 13 there was a total of thirty-seven cases. The health board ordered all milk sold in Moorestown to be sterilized and a citizen's meeting was held in the Town Hall, August 12, to discuss the source from which the town's water is drawn—the upper branch of Pensauken Creek.

Dairy Closed Because of Typhoid.—Up to August 9, thirty cases of typhoid had been reported to the Board of Health from Moorestown and from Mount Laurel township, adjoining. The inspectors found that with but one or two exceptions, every victim of the fever had been using milk from one dairy. The town's water supply has also been found to be badly infected. Blood tests of employees at the suspected dairy have shown that one employee has a mild case of "walking typhoid," while several employees of a milk distributing station are showing symptoms of the disease. The state authorities have closed the infected dairy, ordered that all milk sold in the town be pasteurized and have posted public notices, warning residents to boil all water used for drinking purposes.

NEW YORK

Reporting Industrial Diseases.—The New York State Department of Labor, Bureau of Labor Statistics, is sending to all physicians of the state blank certificates of industrial disease together with a booklet on the "Reporting of Industrial Diseases" which contains the reporting law, the purpose of reporting, the occupation diseases and a list of harmful substances and their effects. For the material contained in this booklet the department is indebted to the New York Academy of Medicine, especially to Dr. W. Gilman Thompson of the Cornell University Medical College.

All New York Medical Colleges to Teach Public Health and Sanitation.—The State Department of Health has, with the cooperation of the deans of all the medical colleges in the state, formulated plans to include on the curriculum of each medical school a systematic course in public health and the prevention of disease. Some ten of the colleges have already been doing commendable work along this line. A committee consisting of Dr. William A. Howe, Deputy Commissioner of Health; Dr. Heffron, dean of Syracuse University College of Medicine; Dr. Royal S. Copeland, dean of the New York Homeopathic Medical College; Dr. Bensel, representing the Columbia University College of Physicians and Surgeons; and Dr. William H. Park, of the University and Bellevue Hospital Medical College, will meet shortly to draw up a syllabus of a course of instruction which will be submitted to Commissioner Porter and by him recommended to the deans of the medical schools. Part of the lectures in the course will be given by representatives of the State Health Department and in some instances by representatives of city health departments.

New York City

Personal.—Dr. Arthur J. Keating was thrown from his automobile, August 10, and sustained a dislocated shoulder and a fractured ear drum.——Dr. Robert B. Scofield, Yonkers, while driving his touring car, collided with a street car and had two ribs broken, while his aged mother who accompanied him received injuries which will probably prove fatal.——Dr. and Mrs. John A. Hartwell, Dr. Edward L. Corbett, Dr. A. B. Wadsworth and Dr. G. H. Grant have sailed for Europe.

Infant Death Rate Continues to Decrease.—For the week ending August 10 the infant death rate was lower than for any previous week this summer. There were 193 deaths for the Borough of Manhattan against 205 for the corresponding week of last year. The three other boroughs are still close to the records of last year. There have been 572 fewer deaths of infants under one year of age in the greater city this year than during the same period of 1911. During the week there were only thirteen deaths among infants cared for by the milk stations.

Good Work Among Babies Continues.—The report of the Babies' Welfare Association for July shows that the enrollment of babies increased from about 14,000 to 18,000. The New York Diet Kitchen has shown the greatest increase in enrolment; at the beginning of the month there were 983 babies on the lists of their eight milk stations and on August 1 there were 1,347, while only eight deaths have been reported among the entire number. In the 55 stations run by the Board of Health the enrolment was increased during the month from 9,000 to 13,000, and among these there were only eight deaths.

The Typhoid Situation in Greater New York.—An increase in the number of cases of typhoid at this season of the year is expected and this year has proved no exception to the rule. There have been 349 cases reported in the greater city from August 1 to 16. There have been 236 cases in Brooklyn and Queens during this time. The Borough of Brooklyn had 138 cases as compared with ninety-two for the the first fifteen days of August, 1911. In Queens there were ninety-eight cases or practically four times as many as during the same period of last year. Manhattan has had only ninety-six cases as compared with 172 for the corresponding period of 1911. The Bronx has had sixteen cases as compared with sixty-nine for the corresponding period of last year. The report that there was an outbreak of typhoid in the Wall Street district due to the use of bottled water has been pronounced as unfounded by the health department. Thus far the health department has not succeeded in tracing the Brooklyn epidemic to its source. The advisory committee on the administrative control of typhoid will meet next month in consultation with the board of health. This committee was formed early in the year and consists of Prof. William T. Sedgewick, Prof. George C. Whipple, Prof. C. A. E. Winslow, Dr. John W. Brennan, Dr. Alexander Lambert, Dr. Herbert Pease and Prof. Thomas W. Hastings.

PENNSYLVANIA

State Board Will Urge More Rigid Examinations.—The State Medical Board announces that 30 per cent. of the medical school graduates who underwent examination by the body last June failed to pass and were denied the right to practice in this state. The board recently revised its system of examination and the results showed even a greater need of advancing the five-year medical course, with probationary practice in hospitals, demonstrative examinations and the elimination of low standard colleges.

State to Close Unsanitary Dairies.—On August 5, a conference was held by Dr. C. J. Marshall, state veterinarian, and his corps of inspectors, and attended by a number of milk and dairy experts. Among the latter were: Dr. John R. Mohler, chief of the federal bacteriologic department, bureau of animal industry, Washington; Dr. John H. Turner, chief milk inspector of the District of Columbia; N. B. Critchfield, secretary of agriculture of Pennsylvania; Dr. L. A. Klein, dean of the veterinary department of the University of Pennsylvania; Dr. H. B. Felton, milk inspector of Philadelphia; Dr. W. S. Gimper, director of milk hygiene of Pennsylvania; Dr. W. H. Ridge, supervising inspector; Dr. Turner, supervising inspector of Bucks County, and Dr. Charles Schaufler, who has charge of the federal meat inspection in this city. The meeting was called to discuss plans for the improvement of the milk and dairy service. According to Dr. Marshall, of the 190,000 dairies in this state, 10 per cent. or 19,000, are so filthy as to be a menace to health; about 57,000 are near to being nuisances, while only 60 per cent. meet all sanitary requirements.

Philadelphia

No Decrease in Typhoid.—The records of the Bureau of Health for the week ended August 17 showed forty-seven new cases of typhoid, the same number reported the previous week.

To End Dispensary Abuse.—The Philadelphia County Medical Society, which has been making a thorough investigation of the abuse of hospital and dispensary privileges, will present a bill to the next legislature making it a misdemeanor, punishable by fine or imprisonment, for a person able to pay for medical treatment to accept gratuitous service from a charitable institution.

Hospital for Immigration Station Necessary.—According to Dr. A. A. Cairns, chief medical inspector of the Bureau of Health, much unnecessary illness and expense is imposed on Philadelphia by lax inspection and inadequate facilities at the state quarantine station. The state and United States quarantine stations pay great attention to the more virulent contagious diseases, small-pox, bubonic plague and trachoma,

but are lax when it comes to measles, chicken-pox and scarlet fever. When the new immigration station at Gloucester is put into operation, even greater difficulties will be encountered as there is no hospital for contagious diseases in Gloucester, Camden or South Jersey and Dr. Cairns urges the erection of a state hospital for contagious diseases at Marcus Hook.

U. S. Hospital Ship Here Fighting Plague.—The U. S. Marine Hospital ship, *W. D. Bratton*, which arrived at this port August 11, has disinfected seven vessels. The principal object of the *Bratton* is to kill the rats on board ships entering this port and for that purpose uses sulphur and is also equipped with the "Harker" system, which is a method of pumping poisonous gas into a steamer. Dr. Hugh S. Cumming, of the Marine-Hospital Service, assisted by Drs. J. Schwartz and D. Glassberg, is the physician in charge. United States government pathologists have examined about fifty rats, taken from vessels arriving at this port and in no case have they discovered any trace of bubonic plague. In the same way the laboratory of hygiene of the department of health has been examining rats brought from all parts of the city and has found no evidence of any disease. However, the response to the request for rats by the Health Bureau has not been great and the department is most anxious to obtain rodents from the water front.

TEXAS

New Officers.—Central Texas Medical Association at Gatesville, July 9: president, Dr. Edwin Graves, Gatesville; secretary, Dr. H. F. Connally, Waco.

City Bacteriologist Appointed State Inspector.—Dr. J. S. Abbott, food and drug inspector, has appointed Dr. I. B. Lee, bacteriologist of San Antonio, inspector in the food and drug department with full authority to act. The local board of health is conducting a vigorous campaign against the sale of impure milk and against unsanitary conditions prevailing in some of the dairies of Bexar County.

Personal.—Dr. Ernest Boston, Taylor, while returning to his home after a professional call, August 9, was assaulted and would have been robbed but for prompt interference.——Dr. J. R. Nichols, Austin, has been appointed oculist of the Confederate Home, Austin, vice Dr. J. E. Howze.——Dr. E. B. Osborn, Cleburne, has been appointed a member of the State Board of Medical Examiners, vice Dr. J. D. Osborn, resigned. ——Dr. P. D. Barnhill, Brenham, was seriously injured by the overturning of his automobile, July 26.——Lieut. W. L. Robinson, Hubbard, G. N. Decherd, Austin, and J. L. Denson, Cameron, have been commissioned captains in the Medical Corps of the National Guard of Texas.

Hospital and Dispensary Notes.—A free dispensary is to be established in Waco under the supervision of the city physician. The dispensary for the present will be open three times a week between the hours of 3 and 4 p. m.——The old City Hospital, Dallas, has been reopened for the reception of the city's patients. The buildings have been moved back from the original location and have been thoroughly cleaned and disinfected.——The Arlington Hotel has been sold to Drs. W. R. Newton, Buckholts, and Eduard Rischar, Chicago, who will convert the institution into a hospital and training school for nurses after it has been thoroughly remodeled and equipped.——Tarrant County Medical Society has endorsed the $100,000 bond issue to be expended in the building of a new down-town hospital in Fort Worth.——A movement has been commenced in San Antonio to raise $50,000 for a new hospital to be operated by the Free Clinic and Hospital Association.

VIRGINIA

New Officers.—Augusta County Medical Society at Staunton, August 7: president, Dr. Franklin McC. Hanger; secretary, Dr. Kenneth Bradford, both of Staunton.——Piedmont Medical Association at Orange, July 28: president, Dr. D. F. Weaver, Liberty Mills; secretary, Dr. F. G. Scott, Orange.

New Hospital.—A charter has been granted to the Stuart Circle Hospital Corporation, Richmond, with a capital of $50,000. The new institution is to be located on Monument Avenue and the officers of the corporation are Drs. L. C. bosher, president; Dr. Manfred Call, vice-president; Dr. Greer Baughman, secretary, and Dr. Charles R. Robins, treasurer.

GENERAL

Southern Medical Association to Meet.—The Southern Medical Association will hold its annual meeting in Jacksonville, Fla., in November under the presidency of Dr. J. M. Jackson, Miami.

Change of Name to Public Health Service.—By the act of Congress, approved Aug. 14, 1912, the name of the U. S. Public Health and Marine-Hospital Service was changed to the U. S. Public Health Service. The functions and duties of the service have been extended and a revision in the salaries of the officers made, as noted in THE JOURNAL last week.

Otologists Hold Meeting.—The Ninth International Otologic Congress was held in Harvard Medical School, Boston, last week and the following officers were elected: president, Dr. Clarence John Blake, Boston; vice-president, Dr. B. Alexander Randall, Philadelphia; secretary-treasurer, Dr. Henry O. Reik, Baltimore, and assistant secretaries, Drs. William F. Knowles, Boston; Ralph Butler, Philadelphia, and Jesse W. Downey, Baltimore. The International Lenval prize was awarded to Dr. George E. Shambaugh, Chicago, for his work on the anatomy and physiology of the labyrinth. This is said to be the first time this prize has been awarded to an American.

Warning Concerning Insurance Agent.—From several points in Illinois information is being received concerning an insurance agent, with the request that we warn the readers of THE JOURNAL against being victimized. Our informants state that a Mr. Sumner P. Hinckley presents himself as representative of the Conservative Life Insurance Co. of Wheeling, W. Va. It is stated that he offers to appoint physicians as medical examiners, guaranteeing $25.00 a month medical fees for one year on condition that the physician takes out an insurance policy for which Hinckley takes the money. Our informants state that investigation shows that the company repudiates the Hinckley appointments, and victims secure only the insurance. Our informants request us not to use their names, as they do not want to be called "easy."

The Plague.—The last case of plague in Porto Rico was reported August 6, making a total of forty-seven cases. Of these, thirty-two occurred in San Juan. The situation seems to be under control. Rat-proofing and the catching of rats are being pushed at San Juan and other points where the disease appeared.——Over a month has elapsed since the last case was reported from Cuba.——No additional plague rats have been found in New Orleans. The work on rat proofing and extermination of rats is being actively carried on in other coast cities.——*Public Health Reports*, August 16, contains the antirat ordinances in force in the city of San Francisco. They include the requirements found by Surgeon-General Blue, while in charge of the plague eradication work in San Francisco, to be necessary in combating the plague, and are based on his recommendations. These ordinances should be of interest to other cities threatened with plague invasion.

Legislation Regarding Fake Cures.—The Sherley bill, which is intended to correct the defect in the Food and Drugs Act in regard to misbranding as interpreted by the recent decision of the supreme court, was approved by the House of Representatives, August 19. The Sherley bill provides that any drug shall be deemed misbranded "if its package or label shall bear any statement, design or device regarding the curative or therapeutic effect of such article which is false and fraudulent." The supreme court, in a divided opinion, decided, in effect, in the Johnson cancer cure case, an account of which was given in THE JOURNAL, that the makers of nostrums might make any claims they desired in regard to curative effects, provided only that the strength and purity of the ingredients conformed to the requirements of the Pharmacopeia or were published on the label. This decision defeated the efforts of the government to suppress the Johnson cancer cure fake and let down the bars for the exploitation of the public by almost any sort of fake cure.

Clinical Congress.—The third Clinical Congress of Surgeons of North America will be held in New York, November 11-16. The place of registration is the ball room of the Waldorf-Astoria, where the daily program will be bulletined one day in advance and where printed programs of each days' clinics will be distributed. The work of the congress will be divided into six branches, namely: general surgery, gynecology, genito-urinary surgery, orthopedics, obstetrics and eye, ear, nose and throat surgery. In the evenings literary and scientific programs will be given as follows:

Monday, November 11—Presidential Meeting—Albert J. Ochsner, Chicago: Address of the retiring president. Edward Martin, Philadelphia (president's address): Treatment of Hepatic Cirrhosis. William J. Mayo, Rochester, Minn.: Surgery of the Large Bowel. Discussion by Charles H. Peck, New York City.

Tuesday, November 12—George W. Crile, Cleveland: Kinetic Theory of Certain Diseases. With Special Reference to Internal Secretions. Howard A. Kelly, Baltimore. Paper on Kidney Surgery. Discussion by George E. Brewer, New York City. Otfried Foerster, Breslau, Germany: Indications and Results of Excision of the Posterior Spinal Nerve-Roots. Charles H. Frazier, Philadelphia: Paper on Surgery of the Spinal Cord. Discussion by Charles A. Elsberg, New York City.

Wednesday, November 13—Thomas S. Cullen, Baltimore: Radical Operation for Cancer of the Uterus, viewed from the standpoint: (a) permanent cure; (b) temporary relief. Ernest Wertheim, Vienna, Austria: Subject to be announced. X. O. Werder, Pittsburgh: The Cautery in the Radical Treatment of Cancer of the Cervix. Robert L. Dickinson, Brooklyn: Subject to be announced.

Thursday, November 14—W. Arbuthnot Lane, London, England: Chronic Intestinal Stasis. John G. Clark, Philadelphia: Summary of Results of Gastro-Intestinal Stasis. Robert C. Coffey, Portland, Ore.: Subject to be announced. Richard R. Smith, Grand Rapids, Mich.: Subject to be announced. Chevalier Jackson, Pittsburgh: Bronchoscopy, Esophagoscopy and Gastroscopy (lantern demonstration). Myles Standish, Boston: Paper on Surgery of the Eye. Ewing W. Day, Pittsburgh: Otitis Meningitis, the Indication of and the Operative Treatment for.

Friday, November 15—E. G. Abbott, Portland, Me.: The Treatment of Lateral Curvature of the Spine. Discussion by John Ridlon, Chicago, and Royal Whitman, New York City. John B. Murphy, Chicago: On Surgery of the Bones and Joints.

PROGRAM OF THE HYGIENE CONGRESS

An inspection of the advance sheets of the preliminary program of the Fifteenth International Congress on Hygiene and Demography shows what a valuable medical and sociologic convention will be held in Washington September 23 to 28. It is interesting to quote from the program. For example, the Section on Hygienic Microbiology and Parasitology will hold a joint session Thursday morning, September 24, with the Section on Control of Infectious Diseases and will take up the subject of poliomyelitis as follows:

POLIOMYELITIS, ETIOLOGY AND MODE OF TRANSMISSION

Etiology, Prophylactic Measures. Dr. Netter, Paris, France.
Epidemic Poliomyelitis in Norway. Dr. Francis Harbitz, Christiania, Norway.
Sanitary Measures Against Poliomyelitis. Messrs. and Drs. M. Levaditi, Paris, France; Karl Landsteiner, Vienna, Austria; Simon Flexner, New York; Paul Römer, Marburg, Germany; Alfred Pettersson, Stockholm, Sweden.
Etiology and Symptomatology of Poliomyelitis. Dr. M. Neustaedter, New York.

A similar session is to take up the subject of hookworm:

HOOKWORM DISEASES

Biology and Terminology. Drs. M. Breton and L. Bruyant, Pasteur Institute, Lille, France, and Dr. C. W. Stiles, Washington, D. C.
Eradication. Drs. Bailey K. Ashford, Porto Rico; W. S. Rankin, Raleigh, N. C.; Hiram Byrd, Jacksonville, Fla.; John A. Ferrell, Raleigh, N. C.

Other interesting fragments from the program are:

THE HEALTHFULNESS OF OCCUPATIONS

Industrial Accidents and Trade Diseases. Messrs. Frederick L. Hoffman, Newark, N. J.; Robert E. Chaddock, of Columbia University; Henry J. Harris, Library of Congress; Lucien March, Director of Statistics of France; Arthur Fontaine, Director of Labor, Paris.

ALCOHOLISM AND ACCIDENTS, SICKNESS AND MORTALITY

The Relation of Alcoholism and Consumption. Dr. Jacques Bertillon, Paris.
Mortality from Alcohol in the United States. Edward Bunnell Phelps, Editor *American Underwriter*.
Alcohol as a Predisposing Cause to Accidents and Occupational Disease. Dr. William F. Boos.

HYGIENIC MICROBIOLOGY AND PARASITOLOGY

Filterable Viruses. Dr. Borrel, Paris, France.
Etiology of Measles. Drs. Joseph Goldberger and John F. Anderson, Washington, D. C.
A New Filterable Virus, Pathogenic for Rats. Dr. Frederick G. Novy, Ann Arbor.
Experiments on the Nature of the Virus of Rabies. Dr. D. W. Poor and Dr. Edna Steinhardt, New York.
Transmission of a Malignant Tumor by a Filterable Agent. Dr. Peyton Rous, New York.
Etiology of Typhus. Dr. J. F. Anderson and Dr. Joseph Goldberger, Washington, D. C.

HYGIENE OF INFANCY AND CHILDHOOD

Instruction in Child Hygiene. Dr. Mary S. Macy, New York.
Hygiene of City Babies. Dr. Adolph Baginsky, Berlin.
Teaching School Hygiene. Dr. Ira S. Wile, New York City.
Open-Air Schools With Breathing Exercises to Prevent Tuberculosis and Other Diseases. Dr. S. A. Knopf, New York.
Fundamentals of the Hygiene of the Teacher. Dr. Grace N. Kimball, Poughkeepsie, N. Y.
Campaign Against Favus in the Schools of Mexico. Dr. Manuel U. y Troncoso, Mexico.
Transmission of Disease by Books. Mr. William R. Reinick, Philadelphia.
Disinfection of the Posterior Nares—A Preventive Against Infection. Dr. John J. Cronin, New York.
Syphilis and Gonorrhea in Children by Direct Infection. Dr. Abraham L. Wolbarst, New York City.
Sex Instruction and Hygiene of Boyhood. Dr. Elias G. Brown, Director of the Mountain School, Allaben, N. Y.

The list of scientific sections into which the congress is divided is as follows:

HYGIENIC MICROBIOLOGY AND PARASITOLOGY.
DIETETIC HYGIENE; HYGIENIC PHYSIOLOGY.
HYGIENE OF INFANCY AND CHILDHOOD, SCHOOL HYGIENE.
MENTAL HYGIENE.
HYGIENE OF OCCUPATIONS.
CONTROL OF INFECTIOUS DISEASES.
STATE AND MUNICIPAL HYGIENE.
SEX HYGIENE.
HYGIENE OF TRAFFIC AND TRANSPORTATION.
MILITARY, NAVAL AND TROPICAL (COLONIAL) HYGIENE.
DEMOGRAPHY.

The portions of programs briefly given above illustrate the character and breadth of the scientific discussions to take place. The full program is given in the ninth edition of the preliminary announcement which may be obtained of Secretary-General John S. Fulton, Senate Annex, New Jersey Avenue and B Street, N. W., Washington, D. C. Any person who is interested in the study or practice of hygiene or demography may become a member of the Congress, entitled to take part in the proceedings, and to receive the published transactions, on payment of the membership fee of five dollars. It is planned to hold, in connection with the Congress, an Exhibition on Health during the three weeks from September 16 to October 4, at which the hygienic and demographic work of the United States and its dependencies is to be illustrated. The exhibition will be divided into the following groups:

Group I. Vital Statistics and Demography.
Group II. Growth and Nutrition; Food.
Group III. Hygiene of Infancy and Childhood.
Group IV. Physiology and Hygiene of Exercise.
Group V. Housing.
Group VI. Industrial and Occupational Hygiene.
Group VII. Communicable Disease.
Group VIII. State and Municipal Hygiene.
Group IX. Care of the Sick; Life Saving.
Group X. Hygiene of Traffic and Transportation.
Group XI. Military, Naval and Tropical Hygiene.
Group XII. Sex Hygiene.

All communications concerning the Exhibition should be addressed to Dr. J. W. Schereschewsky, Director of the Exhibition, Senate Annex, Washington, D. C., who will promptly furnish prospectuses of the Exhibition and all other pertinent information on request.

ITINERARY OF HYGIENE CONGRESS VISITORS

A group of physicians from Europe who are to attend the International Congress on Hygiene in Washington next month are to make a tour of some of the principal cities of the United States, as we have already announced. Next week we will give the list of the physicians.

PROGRAM OF THE MEDICAL STUDY TOUR THROUGH AMERICA

From Sept. 17 to Oct. 9, 1912

September 17: Arrival in NEW YORK. Lunch in the Plaza, Savoy and Netherland hotels. Dinner and the evening at Coney Island.

September 18: Visit to the Battery, Ellis Island and to Bellevue Hospital for general inspection and luncheon. Then to the Rockefeller Institute and to Blackwells Island. Evening, 8:30: reception by the German Medical Society at Liederkranz Hall.

September 19: Automobile trip to see upper part of the city—Riverside Drive, Grant monument, Central Park, Public Library, etc.

September 20: Automobile ride to the lower part of the city, then to the Philadelphia and Reading Railway, Liberty Street, New York. By ferryboat to Jersey City. Luncheon in the railroad station restaurant. Departure at 12 noon. Arrival at PHILADELPHIA at 1:50 p. m. Rest at the hotel. Afternoon reception by Mayor Blankenburg and inspection of the city hall. Dinner at the Bellevue-Stratford.

September 21: In Philadelphia as guests of the city and the local profession. In the morning a trip through Philadelphia and Fairmount Park. Inspection of scientific, medical and educational institutions. Special automobile drive for the ladies. Invitation to tea from the ladies' reception committee. In the evening, a banquet by the city and the medical profession.

September 22: Departure from Philadelphia, 10 a. m. Arrival at ATLANTIC CITY, 11 a. m. Departure for Washington, 12 midnight.

September 23: Arrival in WASHINGTON, 7:30 a. m. Headquarters at the New Willard and Raleigh hotels.

September 24 to 28: In Washington, at the Congress on Hygiene.

September 28: Departure from Washington, 12 noon.

September 29: Arrival in CHICAGO, 8 a. m. Breakfast at Congress Hotel and Annex. Visit to the stock-yards and trip through the city.

September 30: In Chicago. Inspection of clinics, hospitals, etc. In the evening, banquet.

October 1: In Chicago. Sight-seeing. Departure from Chicago, 8 p. m.

October 2: Arrival at NIAGARA FALLS, 8 a. m. Breakfast at the International Hotel; carriage drive to Goat Island. In the afternoon, the gorge trip.

October 3: Departure from Niagara Falls, 9 a. m. Arrival in TORONTO, 11:30 a. m. Lodging and meals at the King Edward, Prince George, Queens and Walker hotels. Sight-seeing trip. In the evening, reception by the university and the medical profession.

October 4: Departure from Toronto, 8 a. m. Arrival in KINGSTON, 12:15 p. m. Special steamer trip, with luncheon, through the THOUSAND ISLANDS. Arrival in MONTREAL, 7 p. m. Lodging at the Place Viger Hotel.

October 5: Sight-seeing trips about Montreal. In the evening, a reception by the city and the University of Montreal.

October 6: Departure from Montreal on a special train at 9 a. m. and arrival in BOSTON at 7 p. m. Copley-Plaza Hotel.

October 7: Sight-seeing trips about Boston.

October 8: Leave Boston at 12 midnight.

October 9: Arrival at ALBANY at 7 a. m. Then Hudson River Day Line to NEW YORK, arriving at 6 p. m. Dinner on the steamer *Viktoria Luise*, lying at the Hoboken pier.

LONDON LETTER

(From Our Regular Correspondent)

LONDON, Aug. 10, 1912.

The National Insurance Act

The British Medical Association has declined to accept a suggestion made by Mr. Lloyd George, the Chancellor of the Exchequer, to appoint a committee for the purpose of bargaining with him as to the terms on which the profession will consent to work the medical benefits of the national insurance act, and has informed him that the association adheres to its demands previously placed before him. The association argues that the figures supplied by the actuarial report obtained by the government on the practices in a number of sample towns (previously given in THE JOURNAL), so far from undermining its case, as the chancellor claims, on the whole support it. These figures show that the present income of a physician spread over the population of the towns is $1 per head for an average of 1.8 attendances per annum—a figure which shows that a large number of the population is not attended at all, or insufficiently attended. Under any system of contract practice in which the patient can demand unlimited attendance without extra cost the average number of attendances has been found to be about four per annum, and this is under systems in which there is no choice of physician. It is certain that when the insured persons come under a contract system which allows free choice of physician the average number of attendances will probably be about five. On this calculation the capitation fee of $2 demanded by the association compares unfavorably with the present remuneration. Moreover, this fee is paid at present by the government for medical attendance on postal servants and about the same is paid for attendance on policemen and firemen. In these cases, the persons concerned are picked lives, are living under excellent sanitary conditions and are invalided out of the service if they fall into permanent ill health. On the other hand, the insured persons under the new act will not be selected lives, cannot be invalided out of the insurance service and must be attended at the same rate up to the day of their death. Moreover, the profession feels that it is fighting for something even more important than adequate remuneration—its very existence as an independent body. It is faced by an entirely new set of circumstances, the full bearing of which nobody can estimate. The government proposes to set off a medical service which will at once include about 12 or 14 million people, a large number of whom have in the past received perfectly satisfactory attendance by direct arrangements with their own physicians. There is every indication in the future that it will be sought to include the dependents of the insured persons, so that the service will at no distant date include four-fifths of the whole population. It thus becomes a matter not only of professional but of national concern to ensure that the conditions now set up shall be such as will give the public the choice of the best men and will not tend to lower the standard of the men entering the profession. Under the conditions now offered the most experienced and trusted practitioners would decline to serve. The recruiting of the profession will be adversely affected if in the future more work is demanded without corresponding increase of remuneration, if the profession is to be placed to a large extent under government and lay control, and finally is to be subject to conditions which will restrict quite unnecessarily the scope of private practice, which, even at a lower remuneration, is preferred by the profession to any form of contract practice.

A State Medical Service

There are many indications that in time the medical profession will be transformed into a state service. Medical officialdom is constantly increasing. Beginning with army doctors, health officers, factory surgeons and public vaccinators, school physicians have recently been created and under the insurance act a large number of tuberculosis officers are being appointed. Moreover, the proposed arrangement under the act for the medical attendance on 12 millions of people will involve making the majority of physicians, to a certain extent, public officials. Many believe that the way out of the present deadlock lies in the appointment of whole-time physicians to attend the insured. These would, of course, be nothing more than officials. Dr. Benjamin Moore, professor of biochemistry in the University of Liverpool, recently produced a book entitled "The Dawn of the Health Age," in order to demonstrate the necessity for entirely remodeling the present system of medical practice in the interests of the whole community. He asserted that "at present we possess sufficient knowledge of medical science to enable us to save at least 300,000 lives every year in this country alone," which could be done without costing the nation anything; on the contrary, many million pounds a year could be saved. He characterized the present system of state voluntary hospitals, state and private physicians as chaotic. During the meeting of the British Medical Association at Liverpool a State Medical Service Association was formed under Dr. Moore's inspiration. Its object is to advocate a state medical service on the following basis: (1) the whole profession to be organized on the lines of the other state services now in existence; (2) entry to the profession to be by one state examination; (3) each member of the service to be paid an adequate salary, increasing gradually according to the length of service and position in the service, and to be entitled to a pension after a specified number of years or in case of permanent disablement; (4) members of the public to have, as far as possible, free choice of physicians, but no physician to be called on to have charge of more than a specified number of patients; (5) one of the primary objects of the state service to be to unite preventive and curative medicine; all hospitals to be nationalized and used for the purpose of consultative, operative and therapeutic work at the request of and in conjunction with the patient's own physician; (6) the services of the state physicians to be open to every one, rich or poor; (7) the state medical service to be administered by a board of health under a minister of public health with cabinet rank, assisted by expert medical advisers. This movement was started before the insurance act was passed and is quite independent of the present *impasse*. It is intended that the work of the association shall form a branch of sociologic science and membership is to be open to all prominent sociologists, whether lay or medical.

Decline in the Number of Medical Students

In spite of the increasing population the number of medical students has been declining for some years. In 1893 the number of students entering the profession was 1,747, while the number who qualified as physicians was 1,579. Since then the number has steadily declined till last year when the entries amounted to only 1,232 and the qualifications to 1,042. Several factors have contributed to this result. The profession has been and is still overcrowded; the principal factor is the higher standard demanded as a result of the advance of science. The change in the length of the curriculum from four to five years has meant an increase in the cost of training of $750. The fears expressed by the British Medical Association in regard to a detrimental effect on the recruiting of the profession seem already to have been realized, for a great drop has taken place in the number of entries for 1911—from 1,495 in 1910 to 1,232.

The Census of England and Wales

The first and second volumes of the detailed abstracts of the census of England and Wales have just been issued. On Sunday, April 2, 1911, the population was found to be 36,070,492—an increase of 3,542,649 over the number living in 1901. The increase for the decennium was 10.9 per cent., the lowest recorded. In 1881-91, the rate was 11.65 and in 1891-1901, 12.17. This decline in the rate of growth is not due to falling off in the excess of births over deaths, but to an increased loss by excess of emigrants over immigrants. For, although the increase per cent. by births was 3.01 less than in the previous decade, this deficiency was more than counterbalanced by the fall in the death-rate, and the resulting natural increase by excess of births over deaths was 12.43 per cent. against 12.39. The numerical difference between the natural increase and the actual increase, which is accounted for as a loss by migration, amounted to over 500,000 persons in the past decennium, as against only 60,000 in the previous one. Comparing the growth of population in other European countries for the same period, the increase in the German Empire was 15.2 per cent.; in the Netherlands, 14.8; in Switzerland, 13.2, and in Denmark, 12.6—all in excess of our rate. In new countries, of course, the excess is much greater. Thus, in the United States, the percentage was 21; in Australia, 18.1; in New Zealand, 30.5, and in Canada, 34.1. The average density of population in England and Wales is 618 persons per square mile. The growth of town populations at the expense of country districts is shown by the fact that while in 1851 the urban and rural populations were approximately equal, by 1881, 67.9 per cent. of the population were living in urban districts and by 1911 the proportion had risen to 78.1.

PARIS LETTER

(From Our Regular Correspondent)

Paris, Aug. 2, 1912.

Tuberculosis Among Children Living in Contact With Tuberculous Parents

I have already mentioned l'Oeuvre de Préservation de l'Enfance contre la tuberculose, founded eight years ago by the late Professor Grancher to save the children of tuberculous parents by removing them to the country among healthy peasant families. To show statistically the value of the work of this society, Dr. P.-F. Armand-Delille has gathered figures showing the fate of children of these tuberculous families not so assisted. The investigation included 175 families, in which there were 787 children; of these 165 had died of tuberculosis, seventy-three are now affected with active tuberculosis, sixty-eight have died of other diseases including congenital debility, 323 healthy children have been cared for by the society, and 158 healthy children have not been so assisted. Thus, then, the proportion of tuberculosis among children not helped by the society amounts to 238 out of 396, a proportion of more than 60 per cent., including only the cases of fatal and pronounced tuberculosis. The proportion would be much larger if there were added to it the cases of latent gangliopulmonary tuberculosis among the children supposed to be well. The 323 children of these families placed in the country are all well. Moreover, out of more than 800 children placed by the society since its foundation, there have been in all four cases of tuberculosis, namely, one of tuberculous meningitis, one of cervical adenitis, one of intestinal tuberculosis and one of lupus of the hand, a proportion of less than 0.5 per cent. These four cases, moreover, developed in the months immediately following the separation of the children from their families, showing that the children were already infected at the time of their separation.

Admission of Persons Without the Bachelor's Degree to the Medical Schools

A recent decree has opened the schools of law, science and letters to large classes of persons without the bachelor's degree. Ostensibly it does not affect the admission of students to the medical schools, but, as Professor Grasset of Montpellier points out, it will actually allow the entrance of persons without the baccalaureate degree and will therefore be a dangerous measure, since the possession of the four certificates of higher studies given by a *faculté des sciences*, namely, physics, chemistry, botany, zoology or general physiology or general embryology, is accepted as a substitue for the baccalaureate at the student's entrance on the study of medicine. Thus opening the *facultés des sciences* opens the way to the medical schools. Professor Grasset emphasizes the dangers to medicine of permitting men to acquire the degree of doctor of medicine not only without Greek, without Latin, without philosophy, but without any bachelor's degree.

The Dieulafoy Prize of the Academy of Medicine

Madam Dieulafoy, widow of the late clinician, has given to the Académie de médecine, in memory of her husband, the sum necessary to found a prize of $400 (2,000 francs) which will be awarded every two years to the author of the best work on the subject of internal pathology.

Genital Psychopathy

On July 30 Dr. Picqué, surgeon of the hospitals of Paris, read before the Académie de médecine an interesting paper on this subject. Without undervaluing the important rôle that the uterus may play in the production of certain deliriums, Picqué shows that this rôle has been singularly exaggerated of late, especially abroad. Cases have been rare in which the cure of a uterine affection has not resulted in the disappearance of the concomitant mental trouble. Clinical observation proves every day that uterine lesions no longer deserve the special place they formerly occupied in psychiatric nosology and this organ has no special properties of reaction with the brain. Any lesion of any organ or tissue may through infection produce identical effects on the brain. In numerous cases the extirpation of an infected uterus or any other organ readily leads to the disappearance of mental trouble. But even if it be admitted that infection may produce certain psychopathic conditions which disappear on the extirpation of the focus of infection, does the suppression of the menstrual affection cause the appearance of mental troubles as has been asserted? It may be unhesitatingly said that no psychopathic consequences follow removal of the uterus. Picqué declares that out of 450 women in the Villejuif asylum he could find only seven who had been placed there in consequence of a surgical operation. In these seven patients it was necessary to eliminate two general paralytics and two psychopathics who had been placed in the asylum once or twice before being operated on. This leaves three cases of psychosis after the artificial menopause in a population of 450 insane. The occurrence therefore seems exceptional.

BERLIN LETTER

(From Our Regular Correspondent)

Berlin, August 2, 1912.

Personal

Professor Romberg of Tübingen has accepted the call as professor of internal medicine to the first medical clinic at Munich. Through this acceptance the Munich medical faculty has gained an advantage over the Berlin faculty, a circumstance which we of Berlin may well regret.

Professor Waldeyer has been elected an honorary doctor of the university at Oxford, and an honorary member of the Academia Romana at Bukarest.

Professor Eversbusch, director of the Munich eye clinic, has suffered a stroke of apoplexy.

Meeting of the German Scientists

The meeting of German scientists and physicians is to take place at Munich in the middle of September; the program of the general session presents a series of interesting addresses. Professor Czerny of Heidelberg will discuss the "Non-Operative Treatment of Tumors." Professor Becher of Münster will speak on "Life and Animation" *(Leben und Beseelung)*, and the distinguished Berlin physician, Professor Nernst, will discuss "The Newer Development of Thermodynamics." Reports will be given on modern military surgery, the heredity and determination of sex and the science of life in its significance for present civilization. The banquet, which was to be given by the municipal authorities of Münster, was omitted at the wish of the executive committee. A request of this sort has often been made because it was thought that such festivities were a superfluous burden for the cities which entertain the association of scientists, and for this reason many a city might be hindered from soliciting the meeting of the association. It is the desire of the association that its meetings may be held in as many places in Germany and Austria as possible.

Reduction of the Consumption of Alcohol in Germany

I have several times referred to the resolution adopted in 1909 by the social-democratic party, by which all workmen were incited to avoid the use of spirits. The results of this action, as they are given by the official organ of the social-democratic party, *Vorwärts*, are well suited to present a new and brilliant example of the discipline of this party. In comparison with 1907-1908, there have been produced and consumed from October, 1909, to June, 1912, about 1,500,000 less hectoliters (39,630,000 gallons) of alcohol. As a hectoliter of alcohol will, on the average, make 3 hectoliters of whisky, the use of whisky as a beverage has been reduced, in the period mentioned, more than 4,000,000 hectoliters (105,680,000 gallons), that is, for the whole of Germany about 430,000 hectoliters (11,360,600 gallons) per day.

Municipal Crematory in Berlin

In accordance with the law for permitting cremation in Prussia, adopted some time ago, after overcoming a number of difficulties interposed by the church authorities, there is to be erected in October of this year a crematory in one of the Berlin cemeteries. Without doubt the number of cremations of Berlin citizens will then be considerably increased.

Meeting of the London Royal Institute of Public Health in Berlin

This society held its annual meeting in Berlin, July 25-27. It is unusual to hold this session outside of England, but according to the Transactions there were two reasons for doing this. In the invitation sent out by the president of the society to the English municipal authorities it was emphasized that not only the congress, but also the representatives of English cities, provincial councils and other health authorities would appreciate the opportunity afforded them to learn the sanitary arrangements of Berlin and its vicinity, and particularly the highly developed administrative and scientific methods. The other purpose was of still greater importance, namely, the promotion of a better understanding between Great Britain and Germany. In order to serve the first purpose of the congress, addresses by German scientists were announced, in accordance with the desire of the congress

management. Among the 250 Englishmen in attendance were such distinguished hygienists as Sir Ronald Ross, Sir William Lever, former Surgeon-General Sir Robert Jackson, now 85 years old, Professor Smith, the president of the Royal Institute, and the minister Earl Beauchamp, the president of the congress for this year. The proceedings were satisfactory in every respect. An excellent spirit was particularly evident during the official banquet. At that time telegrams were read in which Emperor William and King George expressed their thanks in reply to the telegrams of homage sent to them by the congress.

Comparison of the Health of the French and German Armies

An article by Professor Schwiening of the Kaiser Wilhelm Military Medical Academy, published in the *Deutsche medizinische Wochenschrift*, says that there has been in the German army during the last twenty years an almost constant reduction of the number of cases of tuberculosis (1890-91: 3.3; 1909-10: 1.9); while in France with slight variations, tuberculosis has remained at the same level, or even an inclination to increase may be perceived (1890: 5.2; 1909: 6.8). With reference to tuberculosis of the lungs (in which the percentage is distinctly higher than in the German army) a reduction appears to have occurred within the last two years in the French army. Schwiening's view, however, is that this decrease is only apparent. While in Germany each soldier in whom tuberculosis is discovered receives hospital treatment and remains isolated till he is discharged, in France a large number of tuberculous soldiers are annually discharged from service without having received military medical treatment. Moreover, a considerable number of tuberculous soldiers die in France without treatment by the military surgeon. Schwiening discusses further the important question on what this high frequency of tuberculosis in the French army depends. For one thing, the French minister of war recently emphasized that there is no doubt of the marked extension of tuberculosis in the civil population, so that a great part of the soldiers are already infected at the time of their enlistment. The French statistics permit us to see that the number of tuberculous soldiers in the first year of service exceeds by far that of the later years (1909: in the first year 13.6; in the later years 6.03). Similar proportions are also apparent in the German army although not nearly so pronounced as in the case of the French. If an average of the last four years is taken, the French army lost in the first years of service 8.3 times as many from tuberculosis of the lungs as the German, and if those suspected of tuberculosis are included, 13.2 times. Schwiening discusses further how it is possible that so many weak persons, generally those suspected of tuberculosis, are enlisted, and he finds the answer in the circumstances that the scarcity of those liable to military duty is the chief reason which compels the army surgeons to lower as much as possible the limit of unfitness, and that in consequence of this, many soldiers are enlisted who are not competent to meet the requirements of the service. Furthermore, the fact must be taken into consideration that tuberculosis is considerably more prevalent in France than in Germany, a circumstance that has again the result that men are enlisted in whom there are as yet no sure signs, or only slight symptoms of the disease. In France 88 or 89 per cent. of the entire population subject to military duty must be enlisted, in order to provide the requisite number of recruits, while in Germany 53 to 55 per cent. are sufficient for that purpose. From this it results that in France the number of those who are declared unfit for the service on account of *faiblesse de constitution* is on the average only 1.6 per cent. of the entire number examined, while in Germany about 8.5 per cent. are rejected as unfit for active service on account of constitutional inferiority. In France only the very weakest persons are freed from the service. The high number of weak recruits, according to Schwiening, influences not only the morbidity from tuberculosis in the French army, but also acts unfavorably on the condition of the army as a whole. Especially striking are the continuously high figures of the more frequent acute communicable diseases. The French minister of war, Millerand, in the discussion in the senate which I mentioned recently and to which Schwiening's article is a reply, stated that the morbidity from typhoid fever had been reduced from 11.15 per thousand of the whole strength in 1888 to 3.36 per thousand in 1910, and the mortality from typhoid had diminished from 2.97 to 0.44 per thousand. These figures are still considerably higher than those of the Prussian army; for here the morbidity from typhoid in 1909-1910 was only 0.38, and the mortality only 0.05 per thousand; that is, fewer became sick in our army than died in the French.

Marriages

GEORGE EVERETT BEILBY, M.D., Albany, N. Y., to Miss Nettie A. Nettleton, of Newark, N. J., August 1.

HAROLD THEODORE HOUG, M.D., Racine, Wis., to Miss Rose Helen Behnken, of Lake Mills, Wis., August 7.

LOUIS E. SAUNDERS, M.D., to Miss Edna Whitmore, both of Stewartsville, Mo., at St. Joseph, Mo., July 31.

JOHN A. PARMENTER, M.D., Morse Bluff, Neb., to Miss Augusta Urban, of Prague, Neb., June 19.

WALFRED ABOW VON ZELLEN, M.D., to Miss Emma D. Menge, both of L'Anse, Mich., August 2.

BASIL LINGER, M.D., French Creek, W. Va., to Miss Maude M. Teter, at Grafton, W. Va., August 3.

IRVING SOBOTKY, M.D., Boston, to Miss Wilhelmina Barius Andrews of Brookline, Mass., August 6.

LESLIE LEVI WILES, M.D., Amsterdam, N. Y., to Miss Helen Beattie, of Warwick, N. Y., July 31.

EDWIN HENES, JR., M.D., New York City, to Miss Irma L. Manegold, of Milwaukee, August 5.

EDWIN VAIL LAPHAM BROWN, M.D., to Miss Frieda Kirchhoff, both of Chicago, August 10.

HENRY JOHN PLENZ, M.D., to Miss Margaret Schultheis, both of Chicago, July 5.

MARY M. TAYLOR, M.D., and Rev. John Nelson, both of Philadelphia, August 9.

Deaths

Thomas B. McClintic, M.D. University of Virginia, Charlotteville, 1896; died in Washington, August 13, aged 39, from Rocky Mountain spotted fever, contracted while investigating the disease in Bitter Root Valley, Mont. Dr. McClintic was a native of Virginia and three years after his graduation in medicine entered the United States Public Health Service as acting assistant surgeon. He was soon commissioned as assistant surgeon and in 1904 was promoted to passed assistant surgeon. He was a member of the American Medical Association and of the Association of Military Surgeons of the United States. Dr. McClintic had extensive service on army transports and in domestic quarantine; was engaged in yellow fever quarantine work in Tampico, Mexico, in 1904; was on duty at the Marine Hospital at San Francisco at the time of the earthquake; was medical officer of the Revenue Cutter *McCulloch* on service in Alaskan waters; was later sent to the Philippines where he served as quarantine officer at Manila. At intervals between these various details he was engaged in special investigations at the Hygienic Laboratory, devoting especial attention to problems of practical disinfection. In 1911 he began his studies in Montana on the disease which ultimately caused his death; he continued his investigations on this subject at the Hygienic Laboratory in the winter of 1911-12 and returned to Montana in March of this year to put into practical operation certain measures for the eradication of the disease from certain areas. His work was highly successful and nearing completion when he contracted the disease. Not a single case, except his own, had occurred in the area in which he worked, demonstrating that this dread malady can, by proper precautions, be practically eradicated. He contracted the disease from the tick-bearing animals with which he worked. Dr. McClintic was one of the most efficient and popular of the younger officers of the Public Health Service. His quiet, unassuming and unselfish character endeared him to his colleagues and all who knew him; his tact, consideration and thoughtfulness made him popular even as a quarantine officer; his efficiency, firmness, resourcefulness and ever readiness for the most onerous and hazardous duties won for him the highest approbation of his superiors.

Herbert Norris, M.D. University of Pennsylvania, Philadelphia, 1866; formerly a member of the Philadelphia College of Physicians; who had resided, since his retirement from active practice, in Taormina, Sicily; died in Rochester, Minn., August 6, after a surgical operation.

Manuel J. Manent, M.D. Tulane University, New Orleans, 1900; since that time a practitioner of Orleans Parish, La.; died at his home in Algiers, August 7, aged 41.

Leon Vance Grove, M.D. Western Pennsylvania Medical College, Pittsburgh, 1892; of Renfrew; a member of the Medical Society of the State of Pennsylvania; consulting surgeon to the State Hospital, Mercer; local surgeon to the Bessemer and Lake Erie Railroad; while driving across an interurban track near Renfrew, August 6, was struck by a trolley car, and died on the way to the Butler County General Hospital, aged 46.

William H. Palmer, M.D. New York University, New York City, 1859; surgeon of the Third New York Volunteer Cavalry throughout the Civil War; medical examiner of Providence, R.I., for twelve years, coroner for nine years and later police surgeon; for one term president of the Rhode Island Medical Society; died at his home in North Woodstock, Conn., August 3, aged 83, from senile debility.

Albert Matson Belden, M.D. College of Physicians and Surgeons, Baltimore, Md., 1888; formerly a member of the American Medical Association; first president of the Hampshire County Anti-Tuberculosis Association; superintendent of the Norwood Sanitarium, Northampton, Mass.; died at his home in that city, August 5, from pernicious anemia, aged 46.

Frederick Earl Beal, M.D. University of Nebraska, Omaha, 1894; a member of the American Medical Association and New York Academy of Medicine; clinical professor of physical diagnosis in the New York Policlinic Hospital; died in that institution, August 8, from pneumonia, aged 44.

Christian P. Seip, M.D. Homeopathic Medical College of Pennsylvania, Philadelphia, 1868; of Pittsburgh; a veteran of the Civil War, and a member of the State Bureau of Medical Education and Licensure; died in Atlantic City, N. J., August 6, from heart disease, aged 69.

Thomas Henry Brannan, M.D. Long Island College Hospital, Brooklyn, N. Y., 1871; for many years a practitioner of Canal Dover, Ohio, and local surgeon for the Baltimore and Ohio Railroad; died at the home of his daughter in Cleveland, August 4, from uremia, aged 66.

John M. Gahringer, M.D. College of Physicians and Surgeons, Keokuk, Iowa, 1896; formerly a member of the American Medical Association and a practitioner of Oelwein, Iowa; died at his home in Grand Island, Neb., recently, from cancer of the throat, aged 47.

Philip H. Pensyl, M.D. Jefferson Medical College, 1864; of Mann's Choice, Pa.; assistant surgeon of the Fifty-Sixth Pennsylvania Volunteer Infantry during the Civil War; died in the Memorial Hospital, Johnstown, August 5, from dysentery, aged 71.

Bernhard Ludwig Wilhelm Theodore Hansmann, M.D. University of Göttingen, Germany, 1856; for more than half a century an esteemed practitioner of Washington, D. C., died at his home in that city, August 13, from senile debility, aged 91.

George C. Armstrong, M.D. Northwestern University Medical College, Chicago, 1899; a member of the American Medical Association; formerly of Cambridge, Neb.; died in Los Angeles, Cal., after a surgical operation, August 5, aged 42.

Oscar C. Collins, M.D. New York University, New York City, 1860; a surgeon in the Confederate service during the Civil War; a member of the Medical Association of Georgia; died at his home in Forsyth, August 4, aged 76.

Robert Alfred Berry, M.D. University of Virginia, Charlottesville, 1882; of Montevallo, Ala.; for several years a practitioner of Birmingham; died in a sanatorium in Memphis, Tenn., August 3, from nephritis, aged 50.

Olive F. Gruver-Carson-Acton-Filmer, M.D. California Eclectic Medical College, Los Angeles, 1896; died at her home in San Francisco, August 4, from asphyxiation by gas, believed to have been with suicidal intent.

Henry Roland Walton, M.D. University of Maryland, 1850; formerly a member of the Medical and Chirurgical Faculty of Maryland; died at his home in Annapolis, August 8, from senile debility, aged 84.

James B. Hannah, M.D. Cooper Medical College, San Francisco, 1902; a member of the American Medical Association; died at his home in San Francisco, July 28, from acute endocarditis, aged 48.

Frank Cowan, M.D. Long Island College Hospital, Brooklyn, N. Y., 1872; a member of the Ohio State Medical Association; died at his home near Ashland, August 7, from cerebral hemorrhage, aged 63.

J. L. Jackson, M.D. Cincinnati College of Medicine and Surgery, 1884; died suddenly at his home in Chattanooga, Tenn., August 2, aged 54.

Lewis H. Watson, M.D. Eclectic Medical Institute, Cincinnati, 1867; of Chicago; died in the Columbus Hospital in that city, August 13, after an operation for disease of the kidney, aged 70.

Robert Hilton Walch, M.D. Illinois Medical College, Chicago, 1897; for several years a member of the faculty of his alma mater; died at his home in Chicago, August 12, from heart disease, aged 59.

William B. Goodman, M.D. Atlanta (Ga.) Medical College, 1890; a member of the City Council of Nashville, Ga., and a trustee of the Nashville High School; died recently in Atlanta, aged 54.

Leonard Morong Kimball, M.D. Pulte Medical College, Cincinnati, 1880; and later a member of the faculty of his alma mater; died at his home in Brookline, Mass., August 4, aged 64.

John Black McClelland, M.D. Hahnemann Medical College, Philadelphia, 1879; a veteran of the Civil War; died at his home in Pittsburgh, August 4, from heart disease, aged 69.

P. Sudler Roberts, M.D. Jefferson Medical College, 1886; a member of the Medical and Chirurgical Faculty of Maryland; died at his home in Oxford, August 6, aged 66.

Henry Light Trumbower, M.D. Medico-Chirurgical College of Pennsylvania, Philadelphia, 1908; died at his home in Coopersburg, Pa., July 31, aged 33.

Chalmers M. C. Prentice, M.D. University of Wooster, Cleveland, Ohio, 1872; died recently from diabetes at the home of his daughter in Texas.

Edwin D. Gibson, M.D. Medical College of Virginia, Richmond, 1854; died at his home in Lignum, Va., July 27, from senile debility, aged 84.

Charles L. Schmidt, M.D. University of Wurzburg, Germany, 1871; died at his home in Escanaba, Mich., August 6, aged 63.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

TYREE'S ANTISEPTIC POWDER

Now Advertised Direct to the Public as the "Best Preventative Known"

When the history of the "patent medicine" business comes to be written impartially and fairly, it will be realized that we, the medical profession, have been in no small degree responsible for its growth. Not a few widely advertised nostrums owe their commercial success solely to the ill considered use accorded them by physicians, to whom they were first exploited. As a well-known and brilliant advertising man once said:

> "The patent medicine of the future is one that will be advertised only to doctors. Some of the most profitable remedies of the present time are of this class. They are called proprietary remedies. The general public never hears of them through the daily press. All their publicity is secured through the medical press, by means of the manufacturer's literature, sometimes gotten out in the shape of a medical journal, and through samples to doctors . . . The medical papers will reap the harvest and the physician himself, always so loud in the denunciation of 'patent medicines,' will be the most important medium of advertising at the command of the proprietary manufacturer. In fact, he is that to-day."

Of the conditions here described probably no better example can be found than Tyree's Antiseptic Powder. For years this preparation was advertised to the medical profession under claims that were fraudulent as to both composition and therapeutic effect. Analyses published in THE JOURNAL[1] proved that the formula given out by Tyree was absolutely false and that the preparation was, essentially, nothing but a simple mixture of sulphate of zinc and boric acid.

From the first it would seem, that the manufacturers of this mixture had for their objective point that period when,

1. Oct. 20, 1906, and May 18, 1907.

thanks to the use of the nostrum by physicians, it would be widely purchased by the public. Lavish advertising was done in medical journals and Tyree's Antiseptic Powder gained admission to the pages of even those journals which required the publication of a "formula"—for a formula was forthcoming. THE JOURNAL itself, until seven years ago, carried the advertisements with a "formula" until chemical examination proved the falsity of the formula, and of the therapeutic claims made for the product. The medical profession in its turn prescribed the nostrum and the "original package" scheme did the rest.

Now, it seems, Tyree considers his preparation so well known that he can be independent either of the assistance of the physician or of his good-will. For Tyree's powder now goes to the public direct and newspaper readers find it advertised as:

"Ideal for douche."
"Unequalled as a douche."
"Best preventative known."
"Unequalled as a preventative."
"Has no equal as a preventative."

And the following, whose very truth must bring the blush of shame to all physicians who have the interest of scientific medicine at heart:

"Prescribed by physicians all over the world for twenty-one years."
"Ask your doctor or send for booklet."
"Used by doctors for the last twenty-one years."
"One of the highest tributes paid Tyree's Antiseptic Powder is the fact that the most successful physicians have been using it for the last twenty-one years."

Not that Tyree has entirely forsaken the medical journals, although he seems to be dropping them one by one. At the beginning of this year at least fifteen medical journals were carrying the Tyree advertisement; by March the number had fallen to seven, while in June the only journals carrying it were:

Medical Record	*Chicago Medical Recorder*
American Journal of Obstetrics	*Pacific Medical Journal*

Those who answer the newspaper advertisements receive a free sample of the powder and several leaflets and circulars giving the various uses (?) of the nostrum. Incidentally these leaflets advertise, in addition, Tyree's "Elixir Buchu and Hyoscyamus Comp.," which is recommended, in various combinations, for such conditions as acute nephritis, epilepsy, neurasthenia, gonorrhea and delirium tremens.

Bearing in mind the claim that is made in the newspaper advertisements that Tyree's Antiseptic Powder is the "best preventative" known, it is interesting to see what Tyree has to say to those druggists whom he offers to supply with circulars for free distribution:

"As these circulars deal with the care of rubber goods, for both medicinal and toilet purposes, they are of great value to the customer and will be retained for further reference. They are boosters for your rubber goods sales, too."

That a nostrum of this sort should go to the public is not surprising, but that it should have reached the public through the instrumentality of the medical profession is a serious reflection on the judgment of physicians. But the incident has a bright side. That the exploiters of this nostrum no longer find it profitable to use medical journals as a means of getting their stuff to the public but must needs use the more expensive newspaper advertising, is cause for optimism. It means that physicians are no longer prescribing, indiscriminately, proprietary products and that they are refusing to be, what they have been in the past, the unpaid distributing agents for nostrum venders.

METHOD OF STANDARDIZING DISINFECTANTS WITH AND WITHOUT ORGANIC MATTER

The attempt to form a standard by which the germicidal power of disinfectants can be estimated has as the result of numerous investigations gradually narrowed itself to comparison with the germicidal powers of phenol (carbolic acid). This relative value is expressed by what is known as the phenol coefficient. Thus if a disinfectant is shown to have three times the germicidal power of phenol, it is said to have a coefficient of 3. In determining this figure as coefficient the trials must be made with the substance under examination and with phenol under exactly the same conditions as to time of action, amount and kind of germ acted on, kind of medium in which growth is tested, etc. Much depends on the method used. Rideal and Walker devised a method which was based on the comparison of the relative dilutions which would kill the *Bacillus typhosus* within a definite time, the choice of which was left to the experimenter. The result of this latitude was that considerable variation in the coefficient obtained might occur from the figures of the same experiment. The manufacturer in such a case might be trusted to take the figures most favorable to his product. To obviate some of these defects, a commission appointed by the *Lancet* devised what is known as the "*Lancet* method." In this method the comparison is made between the lowest dilution of phenol and of the substance under investigation that will kill the *Bacillus coli* at the end of two and one-half minutes. A similar coefficient is determined for thirty minutes and the average of the two determinations is taken as the phenol coefficient.

J. F. Anderson and T. B. McClintic reported[1] on a method which they consider an improvement on the *Lancet* method. They adopt the *Bacillus typhosus* instead of *Bacillus coli* as the test organism and instead of MacConkey's bile salt medium, which is used in the *Lancet* method, they used standards extract broth. They also determined the exact amount of the culture to be used and measured it by a pipet instead of in drops as is done in the older method. Instead of taking the time limit of two and a half and thirty minutes they use two and a half and fifteen minutes. The standard obtained by this method they designate the Hygienic Laboratory phenol-coefficient.

In the first description of this method no organic matter was introduced. As, however, in the practical application of disinfection organic matter is always present it became desirable to take its modifying action on the germicidal power of a disinfectant agent into account. Accordingly Anderson and McClintic have modified their method so that it may be used with the addition of organic matter. The organic matter added consists of a solution of peptone and gelatin in water which is mixed with the typhoid culture in such proportion that by adding 1.1 c.c. of the mixture 0.1 c.c. of the culture is added.

It is to be hoped that this method will be generally adopted and that health officers and others having occasion to recommend or to purchase disinfectants will base their opinions on the efficiency—or otherwise—of the various preparations as demonstrated by this method.

Correspondence

The Use of Beans in Beriberi

To the Editor:—In a "Historical Note on the Use of Beans in Beriberi," (July 20, p. 201) you quote Dr. William H. Jefferys to the effect that beans have been used ten years or more in China to cure beriberi, and that the U. S. Army Tropical Board has no claim of priority in teaching their value in this disease. Dr. Jefferys is undoubtedly correct in stating that legumens (mongos) have been used as a curative agent in beriberi for many years. This is true not only of China, out of Java, the Philippine Islands and, I believe, the entire orient.

At the time (Sept. 30, 1909) when the Tropical Board recommended a change in the Philippine scout ration, reducing the rice and adding beans, the belief in the efficacy of beans was rather hazy and indefinite; many, if not the majority, of investigators were divided between infection theories of Hamilton Wright and others, and Braddon's theory of a toxic epiphyte. The board, of which I was a member,

1. Bull. 82, Hyg. Lab., U. S. P. H. and M.-H. Service.

did not claim to originate the legumen treatment of beriberi. From its studies of the actual dietaries of the Philippine scouts (native troops) it had determined the relative amounts of rice and other foods necessary for health (Kilbourne, E. D.: "Food Salts in Relation to Beriberi," *Philippine Jour. Sc.*, 1910, v, 127) and in its letter of recommendation to the adjutant general stated the maximum amount of rice allowable and the minimum amount of other foods, including beans, necessary for beriberi prophylaxis. It was an accurate estimation of the necessary amounts of the different components based on their past performances. Before that time the use of beans and rice and the proper proportion of each was a hit-or-miss affair. The correctness of the findings has since been proved by the eradication of the disease (Chamberlain, W. P.: "The Disappearance of Beriberi from the Philippine [Native] Scouts," *Military Surg.*, 1911, xxviii, No. 5, p. 509) following the adoption of the recommended ration.

This letter of recommendation antedated by a month or two the publication of Fraser and Stanton's feeding experiments with labor parties in the Malay Peninsula.

In giving credit to Chamberlain and Vedder for the suggestion of this ration and the use of beans you are wrong. The letter of recommendation was made by Captain J. M. Phalen, Medical Corps, U. S. Army, and myself, who then constituted the Tropical Board. Major Chamberlain and Captain Vedder were not in the Philippine Islands at that time; they joined the board later. Major Chamberlain, in his article on "The Disappearance of Beriberi from the Philippine (Native) Scouts" states this fact.

Chamberlain and Vedder's subsequent work in attempting to determine the exact preventive substance has been most valuable, but is not responsible for the eradication of beriberi from the scouts.

E. D. KILBOURNE, Columbus Barracks, Ohio.
Captain, Medical Corps, U. S. Army.

Beriberi Caused by Rice Stored in Damp

To the Editor:—I have been much interested in reading the comments on beriberi in THE JOURNAL. I cannot agree with the present theory of the cause; I believe that it is largely due to rice being stored in a damp place. No other construction can be placed on the cause of the great epidemic at Chiengmai in the north of Siam, which occurred several years ago after the wettest season in twenty years. During this epidemic hundreds of people died of beriberi on the side of the river where the floods were the worst and very few on the high side. These people all eat the unmilled rice, the kind that the scientists tell us will cure the disease. I have had an extensive experience with beriberi and never saw it except when the rice used for food had been stored in a damp place; when care was taken to store the rice in a dry place there was no beriberi.

CHARLES S. BRADDOCK, JR., M.D., New York,
Late Chief Medical Inspector Royal Siamese Government.

Pellagra in Barbados

To the Editor:—This island ought to afford scientists a good field in which to "run to earth" the real cause of pellagra, since the disease has been observed here only during the past twenty years. As a physician of over thirty years' practice, I am sure of my statement. The island is only 166 square miles in extent, a fact which would likewise aid in tracing the origin of the disease. To zeists the contention that pellagra cannot be due to any known fungus in growing corn will be established by the fact that the disease was unknown on the island until twenty years ago, although corn had been grown here for many years previously. A significant fact worthy of notice by zeists is this: Previous to twenty years ago, corn-meal was imported from the United States in oak barrels and the meal was thereby rendered impervious to rain and any other means of liquid contamination. Now, however, meal and flour are imported in cotton sacks, and when thus exposed to rain, etc., it readily cakes in lumps which have to be crushed to pieces when being sold by the pound. In order to be so caked, undoubtedly a fermentation has taken place, since I know that the meal is, through caking, often rendered so sour as to be unsalable. I think this fact worthy of careful examination in arriving at the true cause of the disease.

But aside from this, I am somewhat of the opinion that pellagra, or at least one form of it, is due to some kind of adulteration in the form of a preservative. So-called pellagra appears to manifest itself in two forms; in one form there is the usual inflamed and scaly condition of exposed surfaces; in the other, the first sign is a blackening or dark pigmentation of the extensor surfaces of the forearm, beginning from the elbow. Such a pigmentation is also found on the knees. The pigmentation may be the only sign for some months; ultimately, however, the tongue becomes bare and red and salivation is now a marked feature. A significant fact in regard to pellagra is that authorities, previous to ten years or so ago, directed no attention to the mouth signs, the salivation, etc., but restricted their notice to the recurrent inflammation of exposed surfaces and the subsequent emaciation, associated with diarrhea, etc. So general was this ignoring of the mouth conditions that the late Dr. Cuthbert Bowen of this island, taking into consideration the sprue or psilosis condition of the mouth and the pigmentation of the skin, termed the disease "psilosis pigmentosa" and wrote a brochure on the disease. This fact, I say, is significant, tending to prove that there are or may be really two diseases now known under the name of pellagra. I hold to the opinion also that pellagra may be due to some intestinal parasite since, of the many medicines used by me, I find santonin of most efficacy.

R. G. LECOREST, M.D., Barbados, West Indies.

Plague in Havana Controlled by Own Health Department

To the Editor:—In your editorial (Aug. 3, 1912, p. 375) speaking of plague, you state: "The work of eradicating the disease is being carried on by the Public Health and Marine-Hospital Service in cooperation with the Department of Sanitation of Porto Rico, and by the local and United States authorities in Havana." As regards Havana, the above statement is incorrect and I am sure you will be pleased to make due acknowledgment of the facts on obtaining better information. The United States authorities have had nothing to do with the eradication of plague in this city. They have sent here a very efficient officer, Dr. von Ezdorf of the P. H. and M.-H. S. to look after vessels sailing for United States ports, and we have assisted him, with pleasure, in the protection of American commerce and passenger travel. But, if the plague has been eradicated promptly in Havana, it has been done by ourselves.

JUAN GUITERAS, Director of Health.

The Mongoos as a Plague-Carrier

To the Editor:—Apropos of Dr. Ruth's communication (THE JOURNAL, August 3, p. 386) concerning the mongoos as a possible plague-carrier, attention is invited to the following extract from page 123 of the annual report of the Surgeon-General of the U. S. Public Health and Marine-Hospital Service for the fiscal year 1910:

"Probably the most important work undertaken in the plague laboratory during the fiscal year is that now in progress to determine the part played in the spread of plague infection by the mongoos. These experiments were first undertaken at the request of Dr. J. S. B. Pratt of the board of health, as a result of observations made by him that the mongoos seemed to disappear from a locality prior to an outbreak of human plague. . . . When Pharmacist J. E. Beck succeeded in infecting the first mongoos in this laboratory the peculiarities of the case proved a genuine surprise. The mongoos was inoculated by the dermic method used with guinea-pigs. The material used was spleen from a guinea-pig that died of plague from inoculation from a case of human plague from the steamer *Nippon Maru*. On account of the extreme ferocity of the mongoos it had to be chloroformed before being inoculated. Death occurred in about eighteen hours, and it was at first thought to have been caused by the chloroform. Routine examination of the viscera was made, however, and plague bacilli were found in the spleen. The second mongoos inoculated died in

three days of septicemic plague. The third mongoos inoculated lived thirteen days. Smears from its tissues were not positive, but a guinea-pig was inoculated and died of plague.

"This work is not entirely original, a few cases of mongoos infection having been reported by Simpson in 1905. But this is the first time, as far as is known, that the mongoos has been shown to be a possible, if not a probable, plague-carrier.

"The officials of the board of health at Honolulu regard this demonstration as very important and timely, owing to the prevalence of the mongoos throughout the Hawaiian Islands. Its influence on future insular quarantine and plague-prevention measures may be considerable."

The preceding is taken from the report of P. A. Surgeon Ramus, Chief Quarantine Officer for Hawaii.

Since this work was done mongooses have been regularly trapped in Hawaii and subjected to the same examination for plague infection as is customary for rats.

The mongoos of Hawaii has the nefarious habits which Dr. Ruth ascribes to that of Porto Rico and he is quite right in suggesting that the rodent should be destroyed, if for no other than commercial reasons.

J. E. BECK, Ph.G., M.D., Mobile, Ala.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

THE QUESTION OF THE EXISTENCE OF SCARLET FEVER IN JAPAN

To the Editor:—In the editorial columns of THE JOURNAL (July 20, 1912, p. 198), in a discussion of scarlet fever, the statement is made that "no race or country is immune" from this disease. I do not know that the question is one of supreme importance, but this statement fails to coincide with statements which I have noted elsewhere. Pepper says in his "Theory and Practice" (i, 208): "The disease [scarlet fever] is rare in Asia and Africa and is said to be (Wernich, 1871) entirely unknown in Japan." French, in his "Practice of Medicine" (p. 227) says: "So far as known the Japanese alone possess natural immunity."

A. NOEL SMITH, M.D., Dover, N. H.

ANSWER.—If we were content to quote authorities who do not speak from first-hand knowledge, we would be satisfied to counterbalance Pepper and French by quoting Osler's "Practice," p. 130: "It [scarlatina] is a wide-spread affection, occurring in nearly all parts of the globe, and attacking all races." The only reference Osler makes to racial immunity is: "The natives of India are said to enjoy comparative immunity." It will be noted that Osler ascribes, not absolute immunity, but only "comparative" immunity to East Indians. In the quotation from Pepper, only hearsay evidence is presented, and that is based on "Wernich, 1871," at which date one would hardly expect accurate data from Japan on a medical subject. French's statement is unsupported by other evidence. We do not consider this a sufficient answer to our correspondent, however. The question of scarlet fever in Japan can be best handled by quoting from those who are or have been on the ground.

M. Y. Mayeda (*Sei-I-Kwai Med. Jour.*, Aug. 31, 1898, translated in *Pediatrics*, 1898, vi, 544) says of scarlet fever, of which he goes on to give some clinical notes, "Until lately this disease was little known in the Japanese islands; it has become more frequent and the government has begun to take steps for its prevention." Baelz (quoted by A. S. Ashmead, *Med. Rec.*, N. Y., 1891, xxxix, 358) says that, while the disease is rare in the Japanese islands, it exists and that he had observed characteristic cases in Japanese youths and men (none in women and children) before the date of Wernich's statement quoted by our correspondent through Pepper. J. S. Kirkendall (*Med. Rec.*, Feb. 21, 1891, p. 246) reports a case of scarlet fever in a Japanese student in this country.

Notwithstanding this evidence, it must in fairness be admitted that the existence of scarlet fever among the Japanese is by no means proved beyond a doubt. The point at issue is one of diagnosis, and the difference of opinion seems to hinge, in part at least, on the alleged confusion with scarlet fever of a disease otherwise known in Japan as "windflowers." Those who believe in the actual immunity of the Japanese to scarlet fever seem to be undecided whether to attribute the phenomenon to racial, climatic or dietetic factors. Ashmead (loc. cit.) is altogether skeptical of the existence of the disease among the Japanese, and says that in 40,000 examinations in hospital and private practice in Tokio he never saw a single case of scarlet fever or puerperal infection. He declares that Baelz is the only foreign practitioner who has reported scarlet fever among the Japanese. We are not aware of any case of Japanese scarlet fever or alleged scarlet fever that has been examined by partisans of both theories. Such joint examination might go far toward settling the question.

The universal negative is notoriously hard to defend. In medicine particularly, as some one has said, it is never safe to use the word "never." While we decline, therefore, to be responsible for the statement that "no Japanese have scarlet fever," our readers will oblige us by mentally inserting a saving "practically" or "probably" in the editorial statement that "no race or country is immune."

DIORADIN

To the Editor:—I have been reading an account of sixteen cases of tuberculosis, in the *Medical Review of Reviews*, in which Dr. Stephen W. Wells, of Liberty, N. Y., has used Dioradin with success. I have a case in which I wish to use Dioradin, but would like some more enlightenment on the subject first.

1. What is Dioradin? 2. What has been the experience of others with it? 3. Would you advise its use? P. H. P.

ANSWER.—1. Dioradin is a proprietary preparation said to be a mixture of menthol, iodoform and a preparation containing radium chlorid to the extent of 10 drops of a 1:100,000 solution in 100 c.c. of the preparation.

2. Most reports of the clinical experience with Dioradin appear to come from those who are biased in favor of the preparation. None from reliable, disinterested clinicians are available so far as we can learn. Most of the literature sent out by the proprietors comes from a Dr. Bernheim, of Paris. The preparation has been vaunted in the newspapers in England, Germany and in this country.

3. We would not advise its use because (*a*) it is a nostrum the composition of which has not been satisfactorily disclosed; (*b*) there is no reason for supposing that any of the ingredients, except possibly iodoform, is likely to be of service in the treatment of tuberculosis. The use of menthol by hypodermic or intravenous injection has not proved of value in the treatment of tuberculosis. Where iodoform has been used the results are still uncertain, but if it is to be used in tuberculosis it would be much better to give it unmixed with other remedies. There is no ground for supposing that radium, especially in the extremely minute amount present in this nostrum, is useful in tuberculosis.

LITERATURE ON WEIL'S DISEASE

To the Editor:—Please tell me where I can find some late literature on Weil's disease. F. A. CHAPMAN, M.D., Chicago.

ANSWER.—The following may be referred to:

Leslie, F. E.: Epidemic of Catarrhal Jaundice, *Boston Med. and Surg. Jour.*, Oct. 28, 1909; abstr. in THE JOURNAL, Nov. 13, 1909, p. 1690.

Barker, F. F. and Sladen, F. J.: Small Epidemic of Jaundice with Symptoms of Gastro-Intestinal Catarrh, *Bull. Johns Hopkins Hosp.*, October, 1909; abstr. in THE JOURNAL, Oct. 23, 1909, p. 1431.

Mancini, F.: Epidemic of Jaundice, *Policlinico*, December, 1909; abstr. in THE JOURNAL, Feb. 12, 1910, p. 578.

Hecker, A., and Otto, R. W.: Weil's Disease, *Deutsch. med. Wchnschr.*, May 4, 1911; abstr. in THE JOURNAL, June 10, 1911, p. 1767.

Hallowes, R. R.: Epidemic of Infectious Jaundice, *Brit. Med. Jour.*, June 24, 1911; abstr. in THE JOURNAL, July 29, 1911, p. 428.

Collins, A. N.: Epidemic Jaundice, *Jour. Minnesota Med. Assn.*, July 1, 1911.

Pinniger, N. J. H.: Eight Cases of Catarrhal Jaundice in Epidemic Form, *Brit. Med. Jour.*, Nov. 18, 1911.

Williams, D. O.: Epidemic Jaundice, *Brit. Med. Jour.*, Dec. 23, 1911.

A POOR STATE EXAMINATION QUESTION

To the Editor:—On a recent state board examination the following question was asked:

> "Give the origin, and (b) form of the pneumobacillus of Frankel, and (c) state in what diseases the bacilli have been found."

Will you kindly answer this question in the columns of THE JOURNAL? Incidentally, is it a fair question? I. X. B.

ANSWER.—There is no "pneumobacillus of Frankel" (Fraenkel). There is a pneumococcus of Fraenkel and a pneumobacillus of Friedländer. It is probable that one of these is the organism referred to in the question asked.

Questions asked in state board examinations should be unequivocal and they should cover knowledge which can be obtained from ordinary text-books and which is included in ordinary courses of instruction. The question is not a proper one to be asked in such examinations.

Medical Economics

THIS DEPARTMENT EMBODIES THE SUBJECTS OF POST-GRADUATE WORK, CONTRACT PRACTICE, LEGISLATION, MEDICAL DEFENSE, AND OTHER MEDICOLEGAL AND ECONOMIC QUESTIONS OF INTEREST TO PHYSICIANS

THE ORGANIZATION OF THE DEPARTMENT OF PREVENTIVE MEDICINE IN THE UNIVERSITY OF MISSOURI

W. J. Calvert, M.D.
COLUMBIA, MO.

The recent[1] establishment of a department of preventive medicine in the University of Missouri at once suggests the two questions:

1. What are the purposes of a department of preventive medicine? 2. What are the plans for accomplishing these purposes?

Preventive medicine is that branch of knowledge which collects, arranges, and states in non-technical language the medical knowledge pertaining to the two great classes of diseases: (1) those due to germs and (2) those due to other causes such as alcohol, morphin, etc.—and to the means by which these diseases may be eradicated. Consequently the course in preventive medicine presents in simple language a brief history of medicine, placing special emphasis on Pasteur's discovery that infectious diseases are caused by specific germs; gives the life history of the pathogenic bacteria; and discusses the carriers of bacteria, modes of infection, methods of prevention, and means for stamping out infectious diseases. It also briefly states the theories of immunity and the methods by which infectious diseases may be cured. The important non-infectious diseases are briefly described and the means of their prevention explained.

THE MILKMAN

Before the purposes of this chair can be realized, there are several seemingly disconnected medical, social and economic situations to be taken into account as having, to a certain extent, determined these purposes. There exist:

1. A considerable amount of useful knowledge pertaining to the prevention of diseases.

2. A wide-spread lack of information on the part of the masses pertaining to this knowledge.

3. A rather extensive field for research relating to the prevention of many of our more common diseases.

4. A well-developed system of elementary schools.

1. September, 1911.

It is important that the specific knowledge now at hand regarding the prevention of diseases should be placed as quickly as possible at the disposal of the masses. Naturally the imparting of this knowledge to a large number of people uninformed in the most elementary principles of anatomy, physiology, etc., is an enormous undertaking; and its importance is sufficiently great to warrant the use of any or all existing organizations as means for reaching the people. If it were not for the cooperation of these organizations, the difficulties of the chair of preventive medicine would be well-nigh impossible.

The educational organizations, from the primary grades to the college, are those most available to the present needs of preventive medicine. Properly to utilize the opportunities afforded in the schools, it is necessary to have teachers prepared to give instruction in preventive medicine. To this end the School of Education at the University of Missouri has made a course in preventive medicine a requisite for graduation. These teachers go throughout the state to normal schools and high schools which, in turn, supply teachers to the grammar and elementary schools. The press is a second organization that efficiently serves the purposes of preventive medicine. Should the press of the United States champion the cause of preventive medicine, it would render inestimable benefit, monetary and physical, to the masses. To this end the School of Journalism at the University of Missouri also has made a course in preventive medicine a requisite for graduation. In addition to the requirements of these two departments, students of any department of the university may elect the course.

From the aid that the department of preventive medicine has sought to enlist from the teachers, the journalists and all the students in the university it is evident that it is striving to equip as many teachers as possible in order that they may introduce elementary courses of preventive medicine in the primary and secondary schools of the state; to give the journalists accurate, usable information about preventive medicine in order that they may make the most of the opportunities they have in the press; to instruct as many of the men and women of the university as possible in order that they may derive individual benefit and, at the same time, disseminate the knowledge of preventive medicine into all walks of life.

But the necessarily limited course that students may have had in the schools and the meager knowledge that the people may have accumulated apart from the schools, while important as a stimulus, must be supplemented in times of emer-

gency. When the people are aroused sufficiently to want to know how they may prevent diseases, they should have some authoritative source for additional information. This supplementary knowledge the chair of preventive medicine purposes to supply through its bureau of information which is now in the process of formation. This bureau is not for the treatment of diseases but only for instruction in matters pertaining to prevention. It renders its services without fee. Its functions are:

1. To answer, in so far as is possible, all questions pertaining to prevention asked by individuals or communities of the state of Missouri.

2. To assist in the diagnostication of diseases by performing such laboratory examinations as any physician in the state may desire.

3. To devote special attention to carriers of diseases, to assist in the detection of such carriers and to indicate in so far as is possible the disposition of carriers.

4. To send on request such literature as the bureau may issue.

5. To furnish to the press of the state brief articles on important aspects of preventive medicine.

The fulfilment of such duties by this bureau will of necessity develop a laboratory of clinical pathology which will, in turn, encourage and foster research work.

It is evident, therefore, that the University of Missouri is teaching preventive medicine to non-medical students in order that it may utilize two potent factors within the state—the public schools and the press. It also stands ready to answer questions and to give such information as may be necessary to establish and to maintain a normal, healthy people. The attendance, during the session of 1911-1912, on the course in preventive medicine by students from all departments of the university, their interest, and their comprehension of the subject-matter justifies the belief that non-medical students can, without undue effort, grasp the principles of prevention and that they are anxious for the practical benefits that may be derived from this branch of study.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ILLINOIS: Coliseum Annex, Chicago, September 24-26. Sec., Dr. James A. Egan, Springfield.

IOWA: Capitol Bldg., Des Moines, September 11-13. Sec., Dr. Guilford H. Sumner, State House.

MASSACHUSETTS: State House, Boston, September 10-12. Sec., Dr. Edwin B. Harvey, Room 159, State House.

NEW YORK: September 17-20. Chief of Examinations Division, Mr. Harlan H. Horner, Department of Education, Albany.

Kentucky June Report

Dr. J. N. McCormack, secretary of the Kentucky State Board of Health, reports the written examination held at Louisville, June 3-5, 1912. The number of subjects examined in was 15; percentage required to pass, 70, and not less than 60 in any one branch. The total number of candidates examined was 72, of whom 65 passed, including one osteopath, and 7 failed. The following colleges were represented:

PASSED		
College	Year Grad.	Per Cent.
Hering Medical College	(1912)	87
Louisville National Medical College	(1911)	76
Univ. of Louisville (1910) 70; (1911) 76, 76, 82; (1912) 75, 77, 78, 79, 79, 81, 82, 82, 82, 83, 84, 84, 84, 85, 85, 86, 86, 86, 86, 86, 87, 87, 87, 87, 87, 87, 87, 87, 88, 88, 88, 88, 88, 88, 89, 89, 89, 89, 89, 90, 90, 90, 90, 91, 91, 91, 91.		74
Eclectic Medical College, Cincinnati (1910) 80; (1912)		86
Ohio-Miami Medical College	(1912)	81, 90
University of Pennsylvania	(1912)	86
Vanderbilt University	(1912)	83, 84
University of Tennessee	(1912)	82
Meharry Medical College	(1909)	75

FAILED		
University of Louisville	(1911) 68, 68; (1912)	74, 74
Louisville National Medical College	(1911)	69
Kentucky School of Medicine	(1908)	54
Tennessee Medical College	(1909)	61

Minnesota June Report

Dr. Thomas S. McDavitt, secretary of the Minnesota State Board of Medical Examiners, reports the written examination held at Minneapolis, June 4-7, 1912. The number of subjects examined in was 11; total number of questions asked, 110; percentage required to pass, 75. The total number of candidates examined was 35, of whom 34 passed and 1 failed. Eight candidates were licensed through reciprocity. The following colleges were represented:

PASSED		
College	Year Grad.	Per Cent.
University of Southern California	(1910)	82
Northwestern University Medical School	(1912)	83
Rush Medical College	(1912)	84
University of Minnesota, College of Medicine and Surgery	(1912)	80, 82, 84, 84, 85, 85, 86, 86, 86, 86, 87, 87, 87, 87.6, 88, 88, 88, 88, 88, 89, 89, 89, 89, 89, 89, 90, 90, 91.
Hamline University	(1911)	91
Woman's Medical College of Pennsylvania	(1909)	80
McGill University, Montreal, Quebec	(1907)	86

FAILED		
St. Louis College of Physicians and Surgeons	(1909)	48

LICENSED THROUGH RECIPROCITY		
College	Year Grad.	Reciprocity with
Northwestern University Medical School (1910) (1911) Wisconsin.	(1911, 2)	Illinois;
Hahnemann Med. College and Hospital, Chicago	(1911)	Illinois
Keokuk Medical College, Coll. of Phys. and Surg.	(1908)	Iowa
University of Pennsylvania	(1908)	Michigan
Medical College of the State of South Carolina	(1908)	S. Carolina

New Jersey June Report

Dr. H. G. Norton, secretary of the New Jersey State Board of Medical Examiners, reports the written examination held at Trenton, June 18-19, 1912. The number of subjects examined in was 9; total number of questions asked, 90; percentage required to pass, 75. The total number of candidates examined was 44 of whom 33 passed and 11 failed. Nineteen candidates were licensed through reciprocity. The following colleges were represented:

PASSED		
College	Year Grad.	Per Cent.
Georgetown University, Washington, D. C.	(1910)	77
College of Physicians and Surgeons, Baltimore	(1912)	84
University of Maryland	(1911)	79
Long Island College Hospital (1908) 76; (1911) 77, 78, 80; (1912) 90.		
Cornell University Medical College	(1908) 82; (1911)	77, 87
Columbia University, College of Physicians and Surgeons	(1907) 82; (1912)	83
University and Bellevue Hospital Medical College	(1911) 84; (1912)	78
New York Homeopathic Med. College and Hospital	(1912)	86
Medico-Chirurgical College of Philadelphia (1911) 75; (1912) 82, 82, 82, 85.		
Jefferson Medical College (1911) 81; (1912) 80, 80, 80, 84, 85.		
University of Pennsylvania	(1911) 78, 82; (1912)	78, 80
Hahnemann Medical College and Hospital, Philadelphia	(1910) 77; (1912)	83

FAILED		
Kentucky School of Medicine	(1906)	64
College of Physicians and Surgeons, Baltimore	(1911)	66
University of Maryland	(1906) 68; (1910)	*
New York University Medical College	(1885) 60; (1891)	62
University of Naples, Italy (1893) 57; (1895) 66; (1901) 63; (1905) 68; (1908) 69.		

LICENSED THROUGH RECIPROCITY		
College	Year Grad.	Reciprocity with
College of Physicians and Surgeons, Chicago	(1903)	Illinois
Chicago Homeopathic Medical College	(1886)	Minnesota
Kentucky School of Medicine	(1899)	Kentucky
Medical School of Maine	(1910)	Maine
Baltimore Medical College	(1908)	New Hamp.
Eclectic Medical College of the City of New York	(1911)	Vermont
Columbia University, College of Phys. and Surg.	(1907)	Vermont
University of Pennsylvania (1897) (1898) (1904) (1908) Pennsylvania; (1910, 2) Maine; (1910) Vermont.		
Hahnemann Med. Coll. and Hosp., Philadelphia	(1910)	Maine
Medico-Chirurgical College of Philadelphia	(1907)	Penna.
Jefferson Medical College	(1900)	Penna
University of Vermont	(1909) (1910)	Vermont

* Expelled for cheating.

The following questions were asked:

ANATOMY

1. Describe the subscapular artery; name its branches and anastomoses. 2. What system of nutrient arteries for the cerebrum are derived from the circle of Willis? What is the danger of vascular obstruction in these vessels? Where do similar terminal arteries exist? 3. What vessels are engaged in the anastomosis around the elbow-joints? 4. Describe the superior longitudinal sinus. What veins does this sinus receive? 5. Name the muscles of inspiration and expiration. 6. In what way is a free communication established between the portal and general venous systems? 7. Locate and

describe the coronary sinus of the great cardiac vein. What veins does it receive? How is its opening guarded? 8. Give the relations of the abdominal aorta. 9. Name vessels and nerves of the stomach. 10. Describe the facial vein; mention its tributaries.

PHYSIOLOGY

1. Name all the hepatic functions. 2. Give six factors that affect the arterial circulation. 3. Give six factors that affect perspiration. 4. Give six factors that affect urine secretion. 5. What physiologic disturbances would follow ligation of a renal artery? 6. Define food. 7. Give the food values of meat, bread, milk, potatoes, asparagus and corn. 8. What is accomplished by the portal circulation? 9. Give physiologic explanation of an exaggerated knee-jerk. 10. Give the chemical composition of the body.

CHEMISTRY

1. What are alkaloids? Give the important alkaloids of opium, belladonna and nux vomica. 2. Name the constituents most frequently found in drinking water which render it unfit for use. Give tests for the detection of each. 3. Name the important chemical constituents of saliva, gastric juice, bile and pancreatic juice. 4. Write the chemical formula of nitric, hydrochloric, sulphuric and acetic acids with name and chemical formula of a sodium salt of each. 5. Describe the bromin as to its physical and chemical properties. (b) When and how does bromin occur in nature? 6. Define capillary attraction, electrolysis, dialysis isomerism. 7. What is lithium? (b) On what chemical hypothesis are lithium salts given in uric-acid diathesis? 8. Name the principal carbohydrates and their formulas. 9. What is pyroxylin and how produced? 10. Which is the most important of the celluloses? (b) Of what is wheat flour composed?

HISTOLOGY

1. Describe neuroglia tissue and where found. 2. Describe the dura mater. 3. Describe the cornea. 4. Describe the organ of smell. 5. Describe the fallopian tubes.

PATHOLOGY

1. Explain the derivation of sugar from fats and proteids in diabetes and its significance. 2. Give the pathology of diabetes. 3. Explain the presence of uric acid in the blood and urine. 4. Describe the blood pictures of chlorosis and pernicious anemia.

BACTERIOLOGY

1. Name the bacteria normally present in the intestines. 2. What is the action of the streptococci on different sugars? 3. Where do you find the *Streptococcus salivarius* and what is its function? 4. What do you mean by Koch's postulates? Name them.

PRACTICE OF MEDICINE

1. Give three characteristics of anemic murmurs. 2. Give the causes and significance of five different renal casts. 3. What, how much and how often would you feed a 3-months-old bottle-fed infant? 4. What is hemiplegia, parapiegia and paralysis agitans? Describe the walk in each. 5. Describe icterus and name three chronic diseases of the liver in which it is absent. 6. Where is bronchial breathing normally heard? What does it indicate when heard elsewhere? 7. Describe the eruption in its different stages of (a) measles, (b) chicken-pox and (c) small-pox. 8. Give names and causes of murmurs heard at the apex of the heart; also of the ones heard at the base. 9. What are the physical signs of a cavity of the lung (1) with elastic walls and (2) communicating with a bronchial tube? 10. What is the difference in length of time between inspiration and expiration and the significance of variations therefrom?

SURGERY

1. Describe Pott's fracture. Give treatment. 2. Diagnosis and treatment of strangulated inguinal hernia. 3. Etiology, diagnosis and treatment of mastoiditis. 4. Etiology, diagnosis and treatment of empyema of the antrum of Highmore. 5. Mention the non-malignant tumors of the breast. Describe one variety. 6. Early diagnosis and treatment of tuberculosis of the hip-joint. 7. Give indications for ligating the internal carotid artery. 8. Diagnosis and treatment of rupture of the urinary bladder. 9. Etiology, diagnosis and treatment of phlebitis. 10. Etiology, symptoms and treatment of tetanus.

MATERIA MEDICA AND THERAPEUTICS

1. Name (a) the source, (b) the preparation, doses and (c) the effects of opium, antidote and other measures used for resuscitation. 2. What is antidote for poisoning by (a) bichlorid of mercury, (b) arsenic, (c) atropin, (d) phosphorus? What disease does phosphorus poison simulate? 3. What are the indications and contraindications as to the use of digitalis as a cardiac stimulant? Give dose by mouth and hypodermatically 4. Give therapeutic indications for the use of chloral hydrate, dose in each case. 5. By what rule would you determine the dose of any drug for a child? 6. Write a prescription for acute articular rheumatism in an adult, enterocolitis in a child aged 4 years; explain action of the various drugs. 7. What are the indications for producing diaphoresis? Name three diaphoretics. 8. Give therapeutic uses of chloroform, dose. How would you compare it with other anesthetics? 9. What would be your treatment for a case of uremic poisoning? 10. Name preparations of coca, uses, dosage. What would be your treatment for the cocain habit?

HOMEOPATHIC MATERIA MEDICA AND THERAPEUTICS

Give treatment for: 1. Surgical neurasthenia. 2. Acute nephritis. 3. Iritis. 4. Mastitis. 5. Gall-stone colic. Name five remedies prominently affecting: 6. The skin. 7. The spinal cord. 8. The stomach and intestinal tract. 9. The nervous system. 10. The mental sphere.

HYGIENE

1. At what temperature would you keep a sick room, and how ventilate it for a patient with pneumonia? 2. Give details of fumigating a room recently occupied by a patient with scarlet fever. 3. In hospitals and prisons, what would be the minimum of cubic feet of air space allowed for each occupant? 4. What is the best general method of purifying drinking water? 5. What per cent. of the oxygen inhaled is consumed during an ordinary inspiration?

JURISPRUDENCE

1. State the difference between criminal and civil malpractice. 2. Give in detail the duties of the practitioner who is called to inspect a dead body. 3. Name some of the violent causes of death. 4. Tell how strychnin causes death, and give post-mortem appearances, especially as regards rigor mortis. 5. Differentiate between hysteria and melancholia.

OBSTETRICS

1. Describe your examination of a woman presenting herself at an early period of her pregnancy. Give instructions as to dress, diet, sexual intercourse and subsequent examinations. 2. Give conditions occurring during labor which call for use of forceps and describe their application. 3. Describe briefly the stages of labor, and name the conditions which may delay labor in each stage. 4. Give three conditions which call for version, and describe in detail how it should be performed. 5. Give symptoms suggestive of eclampsia. Give preventive treatment and treatment when convulsions are present.

GYNECOLOGY

1. Give causes, symptoms and treatment of pelvic peritonitis. 2. Give the causes of tear of the cervix and of the perineum; their immediate danger; the conditions they may produce if not repaired; and the best time for the repair of each. 3. Differentiate between ovaritis, salpingitis and appendicitis. 4. Give causes, symptoms and pathology of chronic endometritis and differentiate it from early carcinoma. 5. Give causes, symptoms and treatment of retrodisplacement of the uterus.

Book Notices

A STATISTICAL SURVEY OF INFANT MORTALITY'S URGENT CALL FOR ACTION. By Edward Bunnell Phelps, M.A., F.S.S., Editor The American Underwriter, New York, 141 Broadway, New York. Cloth. Pp. 27.

This little monograph is a reprint of an address given at the first annual meeting in 1910 of the Association for the Study and Prevention of Infant Mortality by Mr. Edward B. Phelps, editor of the *American Underwriter*. The peculiar significance of this excellent address is that it was written by a non-medical man whose original interest in the subject comes through his connection with the life-insurance business. The object is to place on record and bring before the public in a simple form a convincing demonstration of the present appalling infant mortality, causing an utterly needless waste of infant life. The first important fact which Mr. Phelps emphasizes is the ignorance as to the infant mortality of the United States as a whole. As all students of this subject know, until all of our states adopt adequate vital statistics registration laws, it is impossible to arrive at anything except an approximation of the annual infant mortality rate. When it is remembered that after years of effort, the death registration area of the United States still lacks Illinois, Iowa and most of the southern states, while the birth registration area as yet only includes New England, Pennsylvania and Michigan, the difficulties of securing even the basic facts for such an investigation are apparent. Mr. Phelps points out that between 25 and 30 per cent. of all deaths under one year are due to diseases of the digestive system and that, as Dr. E. L. Holt has pointed out, the fundamental causes of infant mortality are mainly the result of poverty, ignorance and neglect. A number of tables grouped in the appendix contain a large amount of statistical matter.

EXERCISE AND HEALTH. By Dr. Woods Hutchinson. Outing Handbooks. Cloth. Price, $0.70. Pp. 156. New York: Outing Publishing Company, 1911.

This collection of six articles published originally in *Outing*, and now forming one of the *Outing* handbooks, was written for laymen and is, therefore, popularized physiology. This, however, does not prevent it from being interesting and graphic. Dr. Hutchinson's ability to put scientific facts in original and striking form is well known. An excellent illustration of this is found in the first paragraph of the first article. "Exercise in primitive times was the price of life. It was only after we had learned to live by our wits and exercise became a luxury, that it began to run into fads. If primitive man neglected his *al fresco* Delsartean exercises and let his muscles soften, he simply provided a tender titbit for some of his confrères, carnivore or cannibal. It was a case of eat or be eaten and his motto was, 'Do it first.' The gorgeous possibilities of power through repose had not yet dawned on him."

This same happy faculty of illuminating scientific facts with humor and apt quotation is found throughout the little volume. This not only makes the reading of the book a pleasure, but also causes many of the bits of advice to stick

in the mind through the aptness of the illustration or the picturesqueness of the phrase employed. The chapters of the book are entitled "Errors in Exercise," "Athletics and the Heart," "Muscle Maketh Man," "Occupation and Exercise," "The Real Danger of Athletics" and "Exercise That Rests." The book is an excellent one to prescribe for business and professional men. In fact, it would be a good thing for the doctor to read before passing it on to his patients.

ELEKTROPHYSIOLOGIE MENSCHLICHER MUSKELN. Von Dr. Med. H. Piper, a.o. Professor der Physiologie, Kgl. Friedrich-Wilhelms-Universität zu Berlin. Paper. Price, 8 marks. Pp. 163, with 65 illustrations. Berlin: Julius Springer, 1912.

In this highly technical monograph the author reports his laborious experiments on the electrophysiology of human muscles. New methods and apparatus had to be invented for this work, whereby the author believes that he has proved beyond doubt the proposition that a voluntary contraction of muscles is caused by the dispatch of fifty impulses per second to the contracting muscle and that each of those impulses causes a distinct contraction-wave. This he has been able to prove by causing irritation of the motor nerve fifty times per second and observing as a consequence a muscular effect not distinguishable from natural contraction. In no other way has he succeeded in reproducing the mammalian muscle contraction, though he has experimented with high-frequency currents, cathodal-closure tetanus, stimulation with different electrical time-stimuli and strychnin-tetanus. We trust that some practical application in medicine may come from these interesting experiments.

ANNUAL REPORT OF THE BUREAU OF HEALTH FOR THE PHILIPPINE ISLANDS. By Carroll Fox, Acting Director of Health. Paper. Manila, 1911.

The tenth annual report of the director of the Bureau of Science of the Philippines gives an account of the work of the bureau during the year ending August, 1911. The work mainly concerns the biologic sciences and chemistry, and only indirectly refers to medicine. Investigations with regard to yaws, particularly with reference to the action of salvarsan, are noted. The opinion is expressed that the preparation is as important a specific for yaws as quinin is for malaria. Work on the parasitic amebas and on various worms, as well as investigations on leprosy, cholera, dystentery and rabies, is reported.

LE LABORATOIRE DU PRACTICIEN. Analyse Clinique—Méthodes et Procédés. Guide de Diagnostic et d'Hygiène Prophylatique des maladies Communes Exotiques et Tropicales. Par Louis Niclet, Dessinateur Photographe du Laboratoire Central de l'Hôpital Saint-Louis. First part. Paper. Price, 3 francs. Pp. 32, with 120 illustrations. Paris: A. Poinat, 121 Boulevard Saint-Michel (Ve), 1912.

This little pamphlet is the first of three sections dealing with the laboratory work of the general practitioner. In this portion, the general organization of a laboratory, the cost of equipment and maintenance, and many methods of examination (especially those dealing with the parasites and diseases of the skin and its appendages) are discussed. The illustrations are very good. The work should prove valuable both to the general practitioner, who may wish to install his own working laboratory, and to the laboratory worker, who may have occasion to give advice concerning the installation of hospital or other laboratories.

Society Proceedings

COMING MEETINGS

Amer. Assn. of Obstetricians and Gynecologists, Toledo, Sept. 17-19.
American Electro-Therapeutic Association, Richmond, Va., Sept. 3-5.
American Public Health Association, Washington, D. C., Sept. 18-20.
American Roentgen Ray Society, Niagara Falls, Sept. 11-14.
Colorado State Medical Society, Pueblo, Sept. 24-26.
Conf. State Bds. of Health of N. Am., Washington, D. C., Sept. 20-21.
Indiana State Medical Association, Indianapolis, Sept. 26-27.
Internat. Congress on Hygiene, etc., Washington, D. C., Sept. 23-28.
Medical Society of the Missouri Valley, Council Bluffs, Ia., Sept. 5-6.
Nevada State Medical Association, Reno, Sept. 10-12.
New Mexico Medical Society, Roswell, Sept. 12-14.
Pennsylvania State Medical Society, Scranton, Sept. 23-26.
Wyoming State Medical Society, Sheridan, Sept. 17.

Medicolegal

Chronic Appendicitis Not Necessarily An Illness

(Miller vs. Maryland Casualty Company (U. S.) 193 Fed. R. 343)

The United States Circuit Court of Appeals, Third Circuit, holds that the question should have been left to the jury whether the statement of an applicant for accident and health insurance did misrepresent or was false when it said that he had never received indemnity for any accident or illness, except for a sprained ankle, whereas he had had chronic appendicitis, had been operated on therefor and had after the operation remained in bed for some time, for which he was paid indemnity benefits of $225. The court says that chronic is distinguished from acute appendicitis. In the former case, the removal of the appendix, while it may be beneficial or desirable, is not immediately imperative. The condition of acute appendicitis is fittingly described as an illness; but chronic appendicitis is not necessarily an illness in common speech, and therefore, when a man is operated on therefor, it does not follow that, when he remains in bed after such an operation, his condition is necessarily and only described as that of illness. A broken limb, an amputation, the removal of a growth, an optical or aural operation may be followed by the patient remaining in bed; but such cessation from physical activity does not necessarily imply illness in the common acceptation of the word. In such common acceptation illness is ordinarily associated with disease, with sickness, with ill health. From this and the terms of the policy it would seem that whether the statement was not literally true was itself a debatable question. And as bearing on the question of the materiality of one of the facts alleged to have been concealed, namely, the fact that the applicant's appendix had been removed, it was to be considered that such removal, instead of increasing the company's risk, actually relieved it from an obligation it assumed by the policy, namely, indemnity against operation for appendicitis. So regard was to be given to the general belief that the removal of the appendix is beneficial and the fact that this man's had been so removed six years before, and with no consequent ill effects.

School Liable for Malpractice—Admissibility of Evidence—Osteopathy

(Atkinson vs. American School of Osteopathy, et al. (Mo.), 144 S. W. R. 816)

The Supreme Court of Missouri, Division No. 1, in reversing a judgment for $10,000 rendered in favor of the plaintiff and remanding the case for a new trial, decided several points of general interest. The plaintiff charged that the defendant, Charles E. Still, connected with the defendant school, in treating her for asthma, or a slight affection of the nasal passages that affected her breathing, while she was a student at the school and entitled to free treatment by it, negligently broke her sternum and forced the same into her lungs, forcing out the cartilages of her ribs on the right side of her body into an unnatural position, etc. The court holds that, there being no denial of the assertion that Still treated the plaintiff as the agent and employee of the school, that corporation would be jointly liable with him for damages resulting from his negligence.

The defendants asserted that the history of the plaintiff's alleged injury was incredible and impossible, for, "if she had suffered bone fractures, instant and severe pain and prostration would have followed, as certainly as fire will burn, or water run down hill." The inference seemed to be, the court says, that the plaintiff's assertion that, after suffering the alleged injuries, and a few days of confinement and pain therefrom, she so far recovered as to pursue her studies and engage in sports for more than six months before the serious phases of the injury developed, was contrary to some well-known and universally recognized natural law, or to universal human experience. The court fails, however, to appreciate the application of that argument to the evidence in this case. Many of us have not had the fortune to sustain similar fractures, and cannot therefore speak from personal experience; but we have

learned by observation as well as common information that apparently similar lesions of the human tissues produce widely different results, even in cases exposed to the most casual visual observation, and, in cases of internal injuries, we are prepared to receive the evidence of those skilled in observing such things as to their nature and probable results, as well as the testimony of those who have seen or experienced the effects which have actually followed them.

The plaintiff was permitted, over objection, to testify that the dean of the faculty, who treated her after her alleged injury, told her that her second, third and fourth ribs were broken, caused from Dr. Still's treatments. That was error. The question is one of importance, because, if such testimony is admissible, it opens one more door by which verdicts may be recovered on unsworn gossip, instead of sworn testimony, and makes it dangerous to furnish the first surgical aid to injured employees, which, happily, most employers are glad to render. Any fact material to the interest of either party to an action, which rests in the knowledge of another, is to be proved by his testimony, and not by his mere assertion, unless the party has authorized him to make the assertion.

The purpose of Section 8537 of the Revised Statutes of Missouri, which provides that osteopathy is "not to be the practice of medicine and surgery within the meaning of Article 1 of this chapter, and not subject to the provisions of said article," is simply to segregate this particular system from those for the regulation of which Article 1 was enacted. Each of these systems, methods, or sciences stands on its own merits.

Telephone Company Failing to Furnish Connection With Telephone of Physician

(Deweese vs. Southwestern Telegraph and Telephone Company (Tex.), 144 S. W. R. 732)

The Court of Civil Appeals of Texas affirms a judgment dismissing an action for damages for the death of a woman alleged to have been caused by a negligent failure to make connection with the telephone of a physician whereby he might be summoned to the bedside of the woman, who was suffering from a hemorrhage from which she finally died. The court says that if there was any right of action it was by virtue of the Texas statute which gives a right of action for actual damages on account of injuries causing the death of any person when such death is caused by the wrongful act, negligence, unskilfulness, or default of another. But the complaint showed that the woman's death was the result of natural causes, and did not result from an injury to her person by the wrongful act of the telephone company. The failure of the company to provide a way of communication with the physician was a breach of contract, which may have indirectly prevented the woman receiving relief which might have saved her life, but such a contingency was too remote on which to base an action for damages under the statute. Again, while a telephone corporation is liable in an action for a death caused by its own wrongful act, it is not liable for the death of a person caused by the wrongful act of its servants, and this woman's death was charged to have been caused by the wrongful act of the company's agents, which failed to state a cause for recovery of damages.

Supervisor Authorizing Treatment

(Belknap vs. Township of Benton (Mich.), 135 N. W. R. 101)

The Supreme Court of Michigan reverses a judgment rendered in favor of the township and grants a new trial in this action for services rendered by the plaintiff as a physician and surgeon to a boy who had his right arm shattered by a gunshot. It was claimed that the supervisor of the township had authorized the treatment at the public expense, although the boy's father had not requested public aid. The court says that, under the Michigan statute, the supervisor is the agent of the township for the transaction of all legal business. It was the duty of the supervisor when this question arose, and investigation had been made, to pass on the question whether or not the care of this boy should be made a township charge. He solely was charged with the duty of determining whether or not the boy, or his father, was such a poor person as to bring the case within the law providing for the support of the poor by the township. The determination by the supervisor that this person was one entitled to relief was an official act which was binding on the township in favor of those who in good faith furnished medical attendance or supplies in reliance on the order and direction of such supervisor. This is not only common justice, but it seems to find support in the authorities. It appeared by the record that the distinction between township and county poor had been restored in the county of Berrien, in which the township of Benton is situated, in 1880, and that since that time each township cared for and supported its own poor.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

California State Journal of Medicine, San Francisco

August, X, No. 8, pp. 313-356

1 Hydrophobia and Its Present Status in California. W. A. Sawyer, Berkeley.
2 Clinical Symptoms of Alcoholism and Its Treatment. R. E. Bering, San Francisco.
3 *Experimental Surgery of Hypophysis Cerebri. H. E. Castle and H. A. L. Ryfkogel, San Francisco.
4 *Clinical Value of Arneth Method of Blood Examination. L. H. Briggs, San Francisco.
5 Case of Acromegaly With Thrombosis and Embolism. W. B. Coffey and W. T. Cummins, San Francisco.
6 Present and Future of Eye and Ear Section of Our State Medical Society. W. H. Dudley, Los Angeles.
7 Ocular Disturbances Caused by Cinematograph. M. E. Hart, San Francisco.
8 Appendicitis—Then and Now. J. C. King, Banning.
9 California State Tuberculosis Commission. G. H. Kress, Los Angeles.

3. Surgery of Hypophysis Cerebri.—The authors believe the pituitary body is a ductless gland which has an internal secretion closely correlated to that of some of the other ductless glands, especially to that of the thyroid, ovaries and testes. Their experiments have proved to them that the pituitary gland is essential to life, but they have not proved that part of the gland is capable of the maintenance of life indefinitely, without symptoms. They believe, as do the majority of experimenters, that the secretion of this gland has a controlling influence over the nervous system; in what manner this influence is initiated they do not theorize. This conclusion is drawn from the fact that hypophysectomized animals usually suffer from various nervous disorders. The anterior lobe, when *in situ*, has the greater control over the other ductless glands, for when it is extirpated there are often changes in the ovaries, testes and thyroid. There are also often manifested a general adiposity and irregular changes in the urine. This cachexia hypophyseopriva is not produced by the removal of the posterior lobe. With the vast amount of careful investigation that is now in progress they believe two very important questions relative to the pituitary gland will soon have been answered, viz.: (1) What is its function, and, (2) what is the value of its transplantation.

4. Arneth Method of Blood Examination.—In his investigations Briggs found that the nuclear formula of the neutrophils, the so-called "neutrophilic blood-picture," in the normal, agrees closely and constantly with that found by Arneth and many other workers. In tuberculous, typhoid, pyogenic and malarial infections, a deviation from this normal is regularly found, the so-called "shift to the left," consisting of an increase in the cells with fewer nuclear units and a corresponding decrease in the cells with many. The degree of this shift appears to be roughly proportionate to the severity of the infection, except in typhoid, in which it is uniformly present to a marked extent, irrespective of the individual case. In tuberculosis such changes in the neutrophils seem to offer a distinct aid in prognosis, although the reliability of this needs further confirmation. In typhoid, pyogenic and malarial infections such changes do not at present appear to be of much practical value. However, in the light of these constant and regular changes in the neutrophils in disease, Briggs says a blood examination should never be considered

complete without an estimation of these cells according to the method of Arneth.

Colorado Medicine, Denver

July, IX, No. 7, pp. 193-220

10 Diagnosis of Mediastinal Growths. J. N. Hall, Denver.
11 Sarcoma of Breast. C. A. Powers, Denver.
12 Diseases of Frontal Sinus; Palliative and Surgical Treatment. T. J. Gallaher, Denver.
13 Case of Friedreich's Ataxia. B. Oettinger, Denver.
14 Intraperitoneal Injuries. L. H. McKinnie, Colorado Springs.
15 Typhoid With Acute Calculous Cholecystitis. R. W. Arndt, Denver.

Journal of Medical Association of Georgia, Augusta

August, II, No. 4, pp. 99-136

16 Importance of Correct Diagnosis of Skin Lesions and Exhibition of Case of Dermatitis Herpetiformis. C. Swanson, Atlanta.
17 *Treatment of Pulmonary Tuberculosis by Compression of Lung. S. T. Harris, Highlands, N. C.
18 Diagnosis and Home Treatment of Tuberculosis. W. B. Hardman, Commerce.
19 *Present Status of Specifics in Treatment of Tuberculosis. E. C. Thrash, Atlanta.
20 Tuberculin Not Even a Placebo. J. M. Anderson, Pinedale.

17. Compression of Lung in Pulmonary Tuberculosis.—Harris has had thirty-four cases in which this operation has been performed, and he reoperated two patients after the gas had been absorbed, in one of them five months after the last filling. Nine of these cases were monolateral in which a complete pneumothorax or compression was produced. The process was arrested in each instance, giving 100 per cent. of successes. There were adhesions in two of them. There was an effusion in one during course of treatment, and in another five months after discontinuing the treatment, following an attack of influenza and pleurisy. The gas had entirely disappeared and the effusion could hardly have had any connection with the treatment. There were five monolateral cases in which there was an incomplete pneumothorax. All of them had heavy adhesions, which prevented its formation, but even with this the results were good in three of them, negative in one, and one died of heart failure. Ten of these cases, where complete pneumothorax or compression was produced, were bilateral. In nine of these the process was arrested in the lung operated on. One is too recent to classify, but the indications are good. In four, the process has remained arrested in both lungs, and in four the process on the unoperated side remained more or less the same, with periods of either bronchitis, perituberculous pneumonia or pleurisy. It would be hard to say if any influence was exerted on these unoperated sides. There were three effusions, one small serous and one massive. In the third case there was an empyema, and a rapid process set up in the other lung, resulting in death. This patient had made remarkable gain and had been home against Harris' advice for some months doing light housekeeping, with every evidence of the process being arrested. There was incomplete or no pneumothorax in ten of the bilateral cases. There were adhesions in all of them. In two of them no pleural cavity whatever was produced and consequently no collapsing of the lung. Five of them were remarkably benefited even with the small collapsing that was produced. Two died of intestinal tuberculosis, which the attempts at compression seemed to aggravate. In all cases in which a compression was produced uniformly good results were obtained in the lung operated on. In these cases the combined mono- and bilateral percentage, where the process was arrested, is 68.42 per cent.

19. Abstracted in THE JOURNAL, June 8, p. 1781.

Interstate Medical Journal, St. Louis

July, XIX, No. 7, pp. 577-655

21 Injection of Oxygen and Other Disinfectants Into Intestines Through Duodenal Tube. A. Schmidt, Halle, Germany.
22 Fallacies in Treatment of Gastro-Intestinal Diseases. I. A. Abt, Chicago.
23 Infant-Feeding as Taught by German School. J. M. Brady, St. Louis.
24 Technic of Wassermann Reaction for Syphilis. R. B. H. Gradwohl, St. Louis.
25 Clinical Diagnosis of Renal Insufficiency. D. Fulton, Los Angeles.
26 Peculiarities of Medical Practice in Porto Rico. C. E. Ruth, Des Moines, Iowa.
27 Better Utilization of City Health Resources in Summer. A. A. Howard, Boston.

Military Surgeon, Washington, D. C.

August, XXXI, No. 2, pp. 119-237

28 Medical Department of United States Army in Civil War. L. C. Duncan, U. S. Army.
29 Modern Methods of Quarantine Against Asiatic Cholera. A. J. McLaughlin, U. S. P. H. and M.-H. S.
30 Report of Board for Study of Tropical Diseases as They Exist in Philippines; Quarter Ending Dec. 31, 1911. W. P. Chamberlain and E. B. Vedder, U. S. Army.
31 Medical Department of Organized Militia Depends on Intelligent and Enthusiastic Cooperation of Headquarters and Line for Satisfactory Sanitary Conditions in Camp. H. H. Doan, U. S. Army.
32 *New Method of Venereal Prophylaxis. R. A. Bachmann, U. S. Navy.
33 Venereal Prophylaxis. W. T. Davidson, U. S. Army.
34 Scheme for Carrying Out Venereal Prophylaxis in Army Posts. H. H. Smith, U. S. Army.
35 Experiments With A. and N. Tube to Determine Its Efficiency as a Gonococcicide. F. F. Russell and H. J. Nichols, U. S. Army.

32. Venereal Prophylaxis.—To devise a means combining practicability, low cost and efficiency, Bachmann experimented with an application that should possess the triple property of being prophylactic against gonorrhea and chancroid as well as syphilis. Beginning with calomel ointment as a necessary ingredient, the next step was to find a suitable antiseptic to fortify its action against the other two diseases. He selected trikresol as the secondary ingredient because in laboratory tests it has been proven the most potent of the phenol group. In I per cent. solutions it is more active than phenol, chinosol, creolin, lysol, etc., killing not only gonococcus but also streptococcus, pneumococcus and bacillus typhoid after one minute's exposure. Ducrey's bacillus of chancroid is considered to be no more resistant to antiseptics than the above organisms, hence trikresol seemed to fill both requirements. As to the method of application, it has been Bachmann's opinion for a long time that to insure protection against gonorrhea after a time greater than an hour the prophylactic must be placed deep in the urethra and must remain there for some time. An ointment fulfils the latter requirement, and to facilitate its application he devised a soft rubber tip 1½ inches long, which is attached to the end of the tube. The tubes are made of two sizes; a small one is intended to be carried on the person and used immediately after exposure. The large one is intended to supplement the smaller tube and should be used on board ship on those patients who report exposure without having used a small tube. It contains sufficient ointment to protect twenty-five men. The rubber tip is to be cleansed with bichlorid alcohol after each insertion.

Therapeutic Gazette, Detroit

July 15, XXXVI, No. 7, pp. 457-532

36 Limitations and Scope of Office Treatment in Gynecology. G. E. Shoemaker, Philadelphia.
37 Value of Extract Corpora Lutea. A. S. Jaeger, Indianapolis.
38 Quinin and Urea Hydrochlorid Solution as Local Anesthetic for Tonsillectomy. H. Kahn, Chicago.
39 Thiosinamin in Arteriosclerosis. G. F. Lydston, Chicago.

Bulletin of Johns Hopkins Hospital, Baltimore

August, XXIII, No. 258

40 *Cutaneous Reaction of Syphilis. J. M. Wolfsohn, Baltimore.
41 *Studies in Tuberculosis. G. B. Webb, Colorado Springs, Colo.
42 John Bell, Surgeon; 1763-1820. E. R. Corson, Savannah, Ga.
43 Some Suggestions to Those on Whose Aid the Success of Ophthalmic Surgeon, in Considerable Measure, Depends. S. Theobald, Baltimore.

40. Cutaneous Reaction of Syphilis.—In reviewing a series of one hundred and fifty cases, Wolfsohn noted that in many cases of tertiary and of latent syphilis the site of the control injection showed almost as marked a reaction as developed about the point where the luetin was injected. This, as was pointed out by Neisser and Bruck, and which seems to be confirmed by Noguchi and this series of tests, appears to be due to the susceptibility to trauma of the skin of syphilitics late in the disease (*Umstimmung*), for not one of the seventy control patients reacted on the side in which the control emulsion was injected. (Experiments are now under way in which a series of patients, not selected, are being inoculated with the control emulsions only.) The patients exhibiting the most marked "control" reactions (*Umstimmung*) were those suffering from syphilis in its later stages. Wolfsohn is convinced that the luetin reaction is specific for syphilis, and that it is

found of greatest value in the latent and tertiary stages of the disease. In some treated cases of secondary syphilis the reaction is positive. In parasyphilitics with the cardiovascular manifestations of the disease the reaction may be delayed for from nine to thirty days. The luetin reaction is helpful in the diagnosis of latent syphilis in pregnancy. The state of *Umstimmung* is well brought out in the tertiary and latent forms of syphilis.

41. Abstracted in THE JOURNAL, April 20, p. 1224.

American Journal of Urology, New York

July, VIII, No. 7, pp. 343-398

44 Time for Prostatectomy. B. Tenney, Boston.
45 Hypernephroma of Kidney of Particular Interest. W. Hutchinson, Montreal.
46 Essential Hematuria. A. Nelken, New Orleans.
47 Fracture of Pelvis Complicated by Extraperitoneal Laceration of Bladder. J. McCarthy, New York.
48 Ileo-Vesical and Appendico-Vesical Fistula Complicated by Stone in Bladder. P. M. Pilcher, Brooklyn.

American Journal of Public Health, New York

July, II, No. 7, pp. 499-590

49 Measures Taken by Canadian Government to Prevent Introduction and Spread of Cholera in Canada. F. Montizambert, Ottawa, Ontario.
50 Washington Sanitary Convention of 1905, With Special Reference to Yellow Fever and Cholera. J. Guiteras, Cuba.
51 Measures Adopted by United States Government to Prevent Introduction of Cholera. J. F. Anderson, Washington, D. C.
52 Defense of Mexican Republic Against Possible Invasion of Cholera. E. Liceaga, Mexico City, Mexico.
53 Inspection of Febrile Patients Non-Immunes to Yellow Fever and Inspection Service of Passengers from Mediterranean Ports. A. Cueto, Porto Rico.
54 *Atypical Anaerobic Gas Bacillus Isolated From Vaccine. W. R. Stokes and H. W. Stoner, Baltimore.

54. **Anaerobic Gas Bacillus Isolated from Vaccine.**—In the course of the routine examination by Stokes and Stoner of vaccine virus at the Health Department an organism was isolated from one set of ten capillary tubes which corresponded in many of its characteristics to the gas bacillus. The organism was recovered by inoculating a glucose fermentation tube with the tube of vaccine, and incubating under anaerobic conditions. The bacillus gave all of the microscopic characteristics of the gas bacillus, being nonmotile and taking the Gram's stain, some few of the bacteria, however, decolorizing by this method. The intravenous inoculation of a rabbit, killed and kept at a room temperature for twenty-four hours, showed no apparent formation of gas. Organs from this animal, however, when incubated at body temperature for twenty-four hours, showed abundant gas formation. Inoculations from the glucose tube into fresh glucose bouillon, lactose bouillon, milk, gelatin, blood-serum and shake glucose-agar showed growth only in the glucose bouillon and shake agar tubes. A second rabbit inoculated from the second-glucose-bouillon tube, killed and placed in the incubator for six hours, then kept at room temperature for eighteen hours, showed abundant gas formation. Cultures from the heart's-blood of this animal when inoculated into glucose bouillon, lactose bouillon and saccharose bouillon, fermented all three of these sugars, producing about 50 per cent. of gas in the glucose and lactose and about 20 per cent. of gas in the saccharose. Litmus-milk tubes inoculated from the heart's blood did not show any apparent change at the end of twenty-four hours, but at the end of forty-eight hours presented the characteristics usually produced by this organism. Gelatin inoculated and incubated for twenty-two days, and then solidified in the ice chest, showed no liquifaction.

Wisconsin Medical Journal, Milwaukee

July, XI, No. 2, pp. 59-70

55 *Growing Importance of Preventive Medicine. J. H. White, Washington, D. C.
56 *Antityphoid Vaccination. M. P. Ravenel, Madison.
57 *Spontaneous Hemorrhage in Newborn and Its Treatment. A. W. Myers, Milwaukee.
58 Intracranial Injuries; Value of Certain Signs in Diagnosis, Prognosis and Treatment. C. A. Evans, Milwaukee.
59 Phenolsulphonephthalein Elimination in Nephritis; Clinical Report of Cases. J. B. James, Wauwatosa.
60 Treatment of and Indiscreet Suturing of Lacerated and Contused Wounds. A. J. Pullen, North Fond du Lac.
61 Childbirth After Apparent Menopause. L. H. Nowack, Watertown.
62 Tonsil Enucleation. L. J. De Swarte, Milwaukee.

55 and 56. Abstracted in THE JOURNAL, June 22, p. 1939 and 1970.

57. Abstracted in THE JOURNAL, April 13, p. 1148.

Journal of Michigan State Medical Society, Battle Creek

August, XI, No. 8, pp. 471-544

63 Medical Situation in Michigan. D. E. Welsh, Grand Rapids.
64 Water Purification. J. W. S. McCullough, Toronto, Ont.
65 Tuberculin Therapy; a Rational Empiricism. E. S. Bullock and L. S. Peters, Silver City, N. Mex.
66 Etiology of Hemorrhage of New-Born; Report of Case. L. W. Haynes, Detroit.
67 *Constipation in Infant; Its Causes and Treatment. C. G. Grulee, Chicago.
68 A Year's Surgical Work. A. McLean and C. D. Brooks, Detroit.

67. **Infantile Constipation.**—As to the treatment of atonic constipation, Grulee says that the indications are for stimulation of the bowel musculature. Such stimulation is best brought about by the use of suppositories, which are a mechanical stimulus and act by irritating the rectal sphincter which, in turn, causes reflexly an increase in the peristaltic action of the intestinal musculature. The use of cathartics is usually not to be favored. Changes of food may at times bring results, but usually only when aided by the use of such mechanical means as suppositories and massage.

New Mexico Medical Journal, Las Cruces

July, VIII, No. 4, pp. 297-327

69 Relation of Psychology to Medicine. M. Silber, Albuquerque.
70 Arterial Pressure. C. T. Sands, Las Cruces.
71 Common House-Fly. T. C. Sexton, Las Cruces.

Bulletin of Manila Medical Society

June, IV, No. 6, pp. 125-136

72 *Typhus Fever in Philippines. W. E. Musgrave and C. R. Stanley.
73 Incarcerated Gravid Uterus. H. Acosta-Sison.
74 Congenital Hour-Glass Stomach; Report of Case. D. M. Molloy.

72. **Typhus Fever in Philippines.**—The authors are emphatically of the opinion that typhus fever occurs sporadically in the Philippines, and that it is one of the infectious diseases which must be added to the nosology of tropical medicine.

Lancet-Clinic, Cincinnati

July 27, CVIII, No. 4, pp. 83-110

75 Urinalysis and Relation It Bears to Medical Examiners' Work. A. T. Gaillard, Philadelphia.
76 Trace of Albumin. W. B. Stewart, Atlantic City, N. J.
77 Value of Urinalysis at Home Office in Each Case of Application for Life-Insurance From Experience of Seven Years. J. W. Guest, Louisville.

Vermont Medical Monthly, Burlington

July 15, XVIII, No. 8, pp. 157-182

78 Tobacco; Its Use and Abuse. D. Marvin, Burlington.
79 Fracture at Lower Third of Tibia. W. H. Grinnell, Danby.
80 Tuberculosis of Kidney, With Report of One Case. J. H. Woodruff, Bare.

Philippine Journal of Science

February, VII, No. 1, pp. 1-62

81 *Result of Past Two Years' Work in Study of Tropical Sunlight. P. C. Freer, Manila.
82 Mucocele and Diverticulum of Vermiform Appendix of Inflammatory Origin. B. C. Crowell, Manila.
83 *Third Contribution to Etiology of Beriberi. W. P. Chamberlain, E. B. Vedder and R. R. Williams, Manila.
84 Schizogony of Trypanosoma Evansi in Spleen of Vertebrate Host. E. L. Walker, Manila.

81. **Study of Tropical Sunlight.**—From all of his observations, Freer draws the conclusion that a climate such as in the Philippines, land surrounded by the sea which modifies the extremes of temperature and with such a large proportion of cloud, is not by any means deleterious to the white man if he takes ordinary precautions which are not as elaborate as those he would take in a northern climate to keep out the cold. The differences in maximum insolation as compared with temperate regions are not great, if any, and many days occur in which the effect of the sunlight is greatly modified. The individual needs only to seek the shade to avoid any deleterious results from even the greatest isolation. If individuals must be exposed to the sun, as is the case with

troops on the march, they can be given adequate protection by light, preferably white, clothing and helmets, but it must be remembered that perspiration is a great factor in keeping the man normal under these conditions and that, during exercise in hot weather much water is lost during the day. Many of the untoward effects attributed to the sun, Freer says, are probably due to the rapid loss of water from the system and could be avoided if the individual were in a position to drink enough to preserve the equilibrium. Two canteenfuls per man are certainly not sufficient. The temptation to drink available water along the road, also, may become irresistible, and sickness caused by infection from such a source may be attributed to the sun as a predisposing factor. Even in places like Khartoum, where the average effect of insolation is much higher than in Manila, the results can be avoided just as they can be in Manila, and it is only in the places where the radiation from the earth at night is so great that no relief is experienced from excessive heat, that the climate may become such as to preclude the possibility of persons unaccustomed to such conditions living in health.

83. **Etiology of Beriberi.**—Further experiments made by the authors all substantiate the theory that polyneuritis gallinarium and beriberi are caused by the deficiency of some as yet unknown substance in the food. They have shown previously that this substance is not phosphorus. To the list of substances shown in previous papers to be of no importance in preventing neuritis of fowls there are now added the following: Nitrogenous compounds such as arginin, histidin, asparagin and various amino-acids; lipoids of the lecithin group and cholin; extract of onions. The neuritis-preventing principle is insoluble in ether and is absorbed by animal charcoal and the filtrate through the charcoal will not prevent neuritis. After absorption the active principle cannot be removed from the charcoal by maceration with water, absolute alcohol or ether. The administration of large quantities of sodium chlorid failed to produce edema in fowls suffering from polyneuritis. Five c.c. of extract (equivalent to 5 gm. of rice polishings) is sufficient to protect fowls subsisting on polished rice. Two and one-half c.c. (equivalent to 2.5 gm. of polishings) is insufficient to confer complete protection against polyneuritis.

Journal of Kansas Medical Society, Kansas City

July, XII, No. 7, pp. 255-300

85 Treatment of Cancer of Cervix. G. M. Gray, Kansas City.
86 Some Considerations in Diagnosis of Otitis Media and Its Complications in Infants and Children. E. N. Robertson, Concordia.
87 Case of Uterus Septus With Unusual Complications. W. G. Norman, Cherryvale.

Old Dominion Journal of Medicine and Surgery, Richmond, Va.

July, XV, No. 1, pp. 1-39

88 Hemochromatosis (Bronzed Diabetes); Report of Case. D. Vanderhood and Hutcheson, Richmond, Va.
89 Methods and Ideals in State Medicine. W. S. Rankin, Raleigh, N. C.
90 Medicine in Lay Literature. B. M. Randolph, Washington, D. C.
91 Operative Treatment of Ventral Hernia Following Laparotomy. B. L. Wyatt and K. L. Buckner, Bridgeport, Tex.

Cleveland Medical Journal

July, XI, No. 7, pp. 471-550

92 *Hemorrhage From Premature Separation of Normally Situated Placenta, With Report of Cases. J. L. Bubis, Cleveland.
93 Separation of Lower Epiphysis of Fibula. L. A. Pomeroy, Cleveland.
94 Cleveland's Maternity Dispensary System. A. J. Skeel, Cleveland.
95 *Traumatic Cataract of Unusual Origin. I. A. Tripp, Cleveland.
96 *Present Status of Therapeutics. J. B. McGee, Cleveland.
97 Syphilis in Pregnancy. W. T. Miller, Cleveland.
98 Later Advances in Pharmacology. J. D. Pilcher, Cleveland.

92. **Placental Hemorrhage.**—A very extensive review of the literature and the observation of four cases prompts Bubis to draw the following conclusions: There is no disease which has a greater variety of causes. Placental apoplexy, like placental infarct, is a cause of this complication of pregnancy and not a disease. The condition of the cervix is the guide to the treatment and prognosis. Complications are numerous and dangerous. Prophylaxis should be the watchword of both patient and physician. The hospital is the best and safest place for the patient. There is no routine treatment. Each case must be treated "*per se*." The value of transfusion is acknowledged. The value of the Momberg belt is still in question. Pubiotomy, after the cervix is prepared, should be done if the child is living and the head is engaged. In concealed hemorrhage, with threatened shock due to increased intrauterine tension, release the liquor amnii slowly through a pin-point opening and use the Kristeller method. Careful observation of the patient is very essential. Most authors are in favor of using ergot.

95. **Traumatic Cataract of Unusual Origin.**—An engineer, aged 30 years, presented himself to Tripp because of an injury to the right eye, produced seventeen hours previously by the bursting of a water-gauge on his engine. The eye was quiet looking, but painful at times. Vision was 20/40, the media were clear, the tension was normal. On dilating the pupil two slight scratches were readily seen on the cornea; these did not stain. Neither could anything be felt with a probe lightly carried over the area. The Roentgen-ray examination showed nothing. This condition remained until the tenth day, when the patient rubbed his eye while awakening from sleep and was frightened to hear something pop. This sound was accompanied by pain and by the discharge of fluid over the cheek. When next Tripp saw him the anterior chamber was shallow, the tension was minus and there was a slight loss of aqueous humor. Vision was now fingers at 5 feet. The pain was very severe, requiring opiates and bandaging. Tripp could not as yet find any foreign body and the eye improved daily. The anterior chamber formed and the tension became almost normal. With the ophthalmoscope a cataractous lens was found. Vision gradually grew dimmer, accompanied by great pain of a lancinating character. It was now fifteen days from the first injury and an enucleation had to be done, on account of the agony and of the fear of a panophthalmitis, an hypopyon having formed.

96. **Status of Therapeutics.**—A certain amount of judicious empiricism would seem to McGee to be an essential part of successful therapy on the one hand, as science is on the other, the best type of therapeutics today combining both. We cannot, he says, really dispense with either, for while we must unquestionably accept the results derived from a scientific source, we can by no means afford to discard the knowledge which comes to us with the testimony of professional tradition in its favor. As to drugs, on which we still largely rely, in spite of the value of physiologic therapeutics in certain conditions, McGee says, we are perhaps somewhat hampered by the number of new remedies introduced, mainly from a synthetic source, and while some prove worthy of professional sanction many are advanced without adequate or trustworthy trial to warrant their acceptance.

The Pharmacopeia and National Formulary embody essentially all the drugs and preparations which we usually require, but as it is sometimes a number of years before the admission of certain agents after they are well known, and others, although found of merit, may be too limited in their general use to warrant inclusion, the personal element of discrimination and choice is as essential and evident here as in the intelligent application of any other lines of therapeutic resource. The tendency of the profession is at present to restrict the number of drugs as much as possible and to have their uses more clearly defined. Such elimination should be especially of aid at the outset of the student's course, a thorough knowledge of a fair number of the standard drugs giving a far better practical foundation than a superficial acquaintance with many. While the use of drugs may have been at times carried to an extreme, and while at times, too, they may fail in the full production of their desired effects, McGee believes there is no question as to their worth when used with discrimination, and that the

more thoroughly we understand them the better we shall be able to employ them, and the more satisfactory results we shall obtain. With a knowledge of those on which we can rely, knowing, too, their limitations, for it is evidently as essential to know what a remedy cannot accomplish as to recognize what it can, we can have more confidence in their prescription.

Iowa Medical Journal, Des Moines

July 15, XIX, No. 1, pp. 1-50

99 Prevention of Typhoid by Vaccination. O. Clark, Keokuk, Iowa.
100 Modern Progress in the Knowledge of Syphilis. A. Schalek, Omaha.
101 Practical Management of Normal Labor. C. A. Henry, Farson, Iowa.
102 Omentum in Abdominal Surgery. C. E. Ruth, Des Moines.
103 Surgeon Lister. H. O. Williams, Ottumwa, Iowa.
104 Malignancy. G. W. Hinkle, Harvard, Iowa.
105 Cholecystitis and Cholelithiasis in Their Relation to Pregnancy. L. H. Branson, Iowa City.

Boston Medical and Surgical Journal

August 8, CLXVII, No. 6, pp. 181-216

106 Some Unsolved Problems of Gastro-Enterology. W. B. Cannon, Boston.
107 *Mexican Scorpions and Treatment of Scorpion Sting. L. H. Mills, Esperanza, Sonora, Mexico.
108 Importance of Differentiating Catarrhs of Large and Small Intestine. A. E. Austin, Boston.
109 Traumatic Rupture of Diaphragm, With Other Injuries; Operation; Recovery. F. J. Cotton, Boston.
110 Multiple Cramps of Psychogenic Type in a Telegrapher. T. A. Williams, Washington, D. C.

107. **Treatment of Scorpion Sting.**—The treatment of scorpion sting, Mills says, varies with the severity of the symptoms. In general it consists of simple incision and the local use of evaporating lotions. In severe cases, incision should be employed, combined with lumbar puncture, which may be repeated if necessary, and the repeated hypodermic injection of scorpion blood to total about 1 c.c. per kilo of body weight. The internal administration of stimulants such as black coffee and aromatic spirits of ammonia, or hypodermic and rectal stimulation if unconscious are also indicated.

New York Medical Journal

August 10, XCVI, No. 6, pp. 257-304

111 The Proteins. D. D. Van Slyke, New York.
112 Comparative Value of Physical Signs and Roentgen-Ray in Determining Chest Conditions. E. A. Miller and A. J. Quimby, New York.
113 Heath's Conservative Mastoid Operation and Its Pathologic Foundation. F. A. Leslie, Toledo, Ohio.
114 Sketch of Cancer Question to Date. E. E. Hubbard, Kansas City, Mo.
115 Ten Sex Talks to Girls. I. D. Steinhardt, New York.
116 Tuberculous Meningitis. H. Rabinowitsch, New York.
117 Antivaccination and Medical Profession. I. W. Brewer, Fort Niagara, N. Y.
118 Prenatal Influences. L. D. McEvoy, New York.

Medical Record, New York

August 10, LXXXII, No. 6, pp. 230-276

119 Birth-Rates, Overpopulation and Cost of Living. C. E. Woodruff, U. S. Army.
120 Sporadic and Epidemic Poliomyelitis. W. H. Thomson, New York.
121 Persistence of Certain Racial Characteristics. P. Kintzing, Baltimore.
122 *After-Care of Discharged Cases of Pulmonary Tuberculosis. A. Meyer, New York.
123 Insurance Examiner and Blood-Pressure Test. F. A. Faught, Philadelphia.
124 Race Resistance. H. Greeley, Brooklyn.
125 Exophthalmic Goiter. A. A. Eshner, Philadelphia.
126 Case of Henoch's Purpura Treated With Human Blood-Serum; Recovery. S. J. Wilson, Brooklyn.

122. **After-Care of Discharged Cases of Pulmonary Tuberculosis.**—Meyer believes that the time seems ripe for the introduction of another factor into the after-care of apparently cured and arrested cases, and that is the establishment of industrial and farming colonies. A few small farm colonies have been established: nothing has been done along industrial lines. In this country the experiment has been tried on a very small scale by the Eudowood Sanatorium, Maryland. It purchased a tract of land adjacent to the institution and eight men and boys who had been discharged were put to work raising hay, corn and tomatoes. Wages were given. It is claimed "that this is the first attempt in this country to provide those leaving a sanatorium with work in a field where they may be able either partially or completely to support themselves under such guidance and in such favorable surroundings that the cure they have made is likely to become permanent." Meyer advocates the establishment of farming and industrial colonies by one of the following methods; either as annexes to existing sanatoria or by the establishment of such colonies as independent undertakings, by public and private philanthropy apart from preexisting institutions.

Of the two methods he prefers that of annexes to existing institutions for the following reasons: It will be easier to get the patients to remain because of familiarity with their environment and because of restoration to health at that place. It will be easier to prepare the way for the settlement of other members of the family in the same community during the last weeks or months of sanatorium care, and pending discharge. It will be easier to acquire land for factories and farms because communities where sanatoria already exist would not oppose their establishment, for they have not the phthisiophobia prevalent everywhere else. It will be easier to enlist the aid—both by counsel in the developing stage and by guidance and supervision in the fully developed stage—of many medical men who have been most enthusiastic in the tuberculosis campaign. The same applies to the volunteer boards of lay people now administering some of these institutions. It will avoid much of the delay that would be caused by hunting for new sites and a discussion of their general availability for the care of convalescent tuberculosis cases. It may prove easier to obtain financial aid from state, municipal and private sources as an extension and evolution of the humanitarian work already undertaken by them, rather than for the initiation of an entirely independent scheme.

Journal of Arkansas Medical Society, Little Rock

July, IX, No. 2, pp. 37-60

127 Importance of Early Diagnosis in Appendiceal Disturbances. C. R. Shinault, Little Rock.
128 *Auto-Intoxication. H. P. Collings, Hot Springs.
129 Duty of Physicians to Teach Mothers. W. Crutcher, Pine Bluff.
130 Dermatology and Syphilology. W. R. Bathurst, Little Rock.
131 Climate in Tuberculosis. J. S. Shibley, Booneville.
132 Adenoid Vegetation and Nasal Occlusion, With Special Reference to Their Influence Over Cerebration. J. M. Wallace, Fort Smith.

128. Abstracted in THE JOURNAL, June 29, p. 2049.

Laryngoscope, St. Louis

July, XXII, No. 7, pp. 917-996

133 Cases of Plastic Surgery. J. C. Beck, Chicago.
134 Case of Otosclerosis, With Pathology. A. M. Amadon, Boston.
135 Physiology of Cochlea. E. D. Wales, Indianapolis.
136 Bacteriemia in Its Relation to Purulent Otitic Disease. J. H. Guentzer, New York.
137 Mucocele of Frontal Sinus With Dilatation. G. C. Hall, Louisville, Ky.
138 Fibroma of Nose and Naso-Pharynx With Sudden Malignant Degeneration. V. Dabney, Washington, D. C.
139 Circumcision of Uvula. H. Hays, New York.
140 Unusual Case of Elongated Uvula. C. W. Kollock, Charleston, S. C.
141 Prognosis and Treatment of Tuberculosis of Larynx. W. Freudenthal, New York.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

British Medical Journal, London

July 27, II, No. 2691, pp. 157-212

1 *"What Are We? What Are We Doing Here? Whence Do We Come and Whither Do We Go?" Sir J. Barr.
2 *Relations of the Circulation. G. A. Gibson.
3 *Personal Experiences in Surgery of Large Intestine. F. T. Paul.

1. **"What Are We? What Are We Doing Here? Whence Do We Come and Whither Do We Go?"**—Barr speaks of eugenics, venereal disease, sanitation and prevention of disease. He concludes as follows:

The path of progress which I have tried to point out will in the future devolve on such great associations as the British Medical—associations which have got no selfish interests to serve, but which have only the honor and dignity of the medical profession and the welfare of the public at heart. We often hear such bold statements as that the general medical practitioner is doomed, his occupation has gone, and his livelihood has vanished. Those who

thus talk have their heaven *in statu quo*—they think there is no blessedness beyond the maintenance of their own ignorance. In my opinion the future of medicine will rest with enlightened and highly educated general practitioners—men who will look after the health of the community, who will see that mechanism of a high order is produced, and who will see that the machinery of the individual is properly lubricated and not subjected to any unnecessary friction or strain. The enlightened public will look to their medical attendants as guides, philosophers and friends, both in health and disease.

As has been long advocated by the British Medical Association, we must have a properly regulated state examination, and the vested interests of corporations must not be allowed to prevail against the public weal. Mere examining corporations which have done practically nothing for medical education, and are chiefly engaged in extracting fees from students, should be allowed to retire into obscurity. There is here plenty of good work for an able statesman—a man determined to lead and to prevent the present policy of drift. The work of the medical profession should be such as to attract the brightest youths in the country. We must recognize that the outlook of the medical profession, though at present somewhat dismal, is merely a transition stage which will soon pass away.

2. **Relations of the Circulation.**—Gibson points out that the circulation in all the higher animals may be regarded as based on four primary groups of principles, viz.: its mechanical arrangements, the chemical changes by which it is maintained, its modification by glandular secretions and its adjustment by nervous agencies. While reviewing recent work on all of these it is to the effect of glandular and other tissues on the circulatory mechanism that he devotes the greater part of his address. He first instances the closeness of the connection between glandular and circulatory changes by reviewing the symptoms and pathologic anatomy of exophthalmic goiter, myxedema, acromegaly and Addison's disease, and then summarizes some of the chief facts in regard to our knowledge of internal secretions and hormones. The well-known properties of thyroid extract and of epinephrin are briefly discussed, but the functions of the pituitary body and the actions of extracts from its different parts are considered at some considerable length.

After referring to the well-established value of thyroid extract in myxedema and cretinism, he points out that it may also afford invaluable service in several conditions which are very likely to be overlooked, such as the minor degrees of thyroid inadequacy occurring at the climacteric period or shortly afterward. He also instances its usefulness in conditions of lack of growth in the youth of both sexes. He believes that thyroid extract influences blood distribution and nutritive possibilities in the most powerful manner. In regard to suprarenal extract or epinephrin Gibson alluded to its use by J. D. Rolleston to prevent heart failure in diphtheria and also to its employment in conditions in which pyrexia has led to diminished function of the suprarenal bodies. He has also found this substance to be of great value in the treatment of exophthalmic goiter, and states that it has no rival in the management of this affection. He has found that under its influence the pulse-rate is reduced, the protrusion of the eyeballs disappears, the thyroid gland gets smaller, and the tremor, together with the other nervous symptoms, vanishes. He therefore inveighs strongly against the present tendency to submit patients with exophthalmic goiter to surgical operation. He also advises the use of pituitary extract in the treatment of certain conditions in which the arterial blood-pressure tends to fall, as in pneumonia and other acute diseases.

3. **Surgery of Large Intestine.**—Paul restricts himself to the consideration of cases in which the following operations have been employed: 1. Colotomy. 2. Short-circuiting. 3. Colectomy. 4. Excision of the rectum. He has done colotomy on sixty-eight patients in private practice during the past ten years. In forty-four of these there was no obstruction, or it was chronic in type, and all recovered. In twenty-four acute obstruction was present, and nine deaths occurred. These were mostly in old people with vomiting (often fecal), meteorism and collapse. It is interesting to note that eighteen of the cases of complete obstruction were met with during the first period of five years, and accounted for seven of the nine deaths; while in the remaining period there were only six cases with two deaths, showing that practitioners are recognizing the importance of earlier surgical treatment. Paul does not recommend short circuiting operations in the presence of any severe form of obstruction such as is likely to be fatal without immediate relief. He has had the best success when he has cut out of circuit the smallest possible amount of bowel. He therefore usually short-circuits just around the growth or other obstruction. In non-malignant cases the bowel appears to be quite normal afterward, and in malignant cases the patients often enjoy a considerable period of comparative comfort. During the last ten years Paul has only short-circuited in twelve private patients with no deaths. Ileum to colon eight, colon to colon four, cancer seven, inflammatory five.

Paul has undertaken colectomy on eighteen private patients during the last ten years. Only one died, the patient in whom he attempted primary suture, an otherwise favorable case of malignant growth in the transverse colon. The remaining seventeen were done by the glass tube operation, and all recovered, though some of them were advanced in years. Among the most interesting points noted in the table is the long survival of patients who have been operated on for cancerous growths. Of the seventeen cases, three were non-malignant, and fourteen cancer. Of the latter, eight patients are still living, and not known to have recurrence; two have died from apoplexy, and four have died from recurrent growth at two and a half, three and a half, three and a half, and seven years respectively. During the last ten years Paul has excised the rectum for cancer in twenty-eight private patients. Two deaths occurred, one the double route operation in a male, the other a high resection in a female. Neither were good subjects, and Paul says he would now probably exclude them both, doing a colotomy instead. Of the twenty-eight, thirteen are still living at one, one, two, two and a half, three, three and a quarter, three and a quarter, five, six, six, seven and a half, nine and ten years respectively. Of the remaining fifteen, twelve died from recurrence after an average duration of life of thirteen months. One died from other cause without recurrence, and two died from the operation.

Lancet, London

July 27, II, No. 4639, pp. 209-282

4 *Relations of the Circulation. *G. A. Gibson.
5 *Personal Experiences in Surgery of Large Intestine. F. T. Paul.
6 *Syphilitic Lung Affections and Immunity in Native Races. H. C. French.
7 *Causes Leading to Educational Deafness in Children. M. Yearsley.
8 *Distribution of Chloroform in Blood. G. H. Clark and D. Lindsay.
9 *Two Unusual Forms of Meningitis Occurring in Infancy. E. B. Smith and A. W. G. Woodforde.
10 Two Cases of Pulsating Exophthalmos, in Which Carotid Artery was Ligatured. R. R. James and W. F. Fedden.

4 and 5. Abstracted from the *British Medical Journal*, Nos. 2 and 3.

6. **Syphilitic Lung Affections.**—French is inclined to the belief that neglect, dirt and pus, and those factors that conduce to phagedena are primarily responsible for perpetuating severe early forms of syphilis in addition to diminished resistance in the individual dependent on blood conditions. As regards prevention, local measures, such as pure phenol and ethyl chlorid applied in the initial stages to chancres of all kinds, rapidly heal them, and to ensure good general health is probably quite as important as to administer mercury, potassium iodid or salvarsan.

7. **Educational Deafness in Children.**—Yearsley pleads strongly for a better recognition and more systematic teaching of otology in medical schools. Instead of being the Cinderella of the specialties, it should be insured that no student receives a qualification to practice until he has a competent knowledge of the causes of ear disease and their prevention. The prevention of deafness needs a universal knowledge on the part of the profession of the etiology and treatment of the causes leading to defective hearing, and such a universal knowledge can only be made possible by the recognition of otology as an important part of the syllabus. The importance of good hearing in the intellectual and moral development of children and the serious handicap of moderate or even slight degrees of deafness, Yearsley says, has been patent to a limited group of educationists and otologists for some time past. It is but lately that the full significance of the sense of hearing in education has become at all widely recognized. The long neglect of diseases of the ear, especially in infancy and childhood,

has but comparatively recently given place to a better knowledge of their etiology and a better understanding of their treatment, while the work done on the pathologic conditions of the upper air passages, to which the great majority of them owe their origin, has supplied ample means for their prevention. There is still, however, Yearsley says, an enormous number of children suffering from ear disease who are allowed to go untreated, some of whom fill deaf schools while others become hopelessly deaf in after life and swell the numbers of physically defective citizens, but whose condition could have been prevented by timely and skilful intervention. Yearsley claims that of the children who thus suffer 50 per cent. are curable, and of the remainder a considerable proportion could be improved, while the greater number are preventable.

8. **Distribution of Chloroform in Blood.**—Evidence is given by Clark and Lindsay that in rabbits the blood contains a larger proportion of chloroform in the plasma when the anesthetic is given subcutaneously than when it is given as an inhalation. This is considered to be the reason for the delay in elimination and the consequent greater injury to the tissues which is associated with this mode of administration.

9. **Meningitis in Infancy.**—The interesting features of the first case cited by Smith and Woodforde are: (1) The long duration of the case, viz., fourteen weeks; (2) the appearance in the first instance of a suppurative meningitis due apparently to a leptothrix alone; (3) the slight initial symptoms associated with this form of suppurative meningitis; and (4) the apparent tendency to recovery from this infection which was prevented by the very unusual sequence of a secondary infection of the meninges by the tubercle bacillus. The second case was one of meningitis due to the *Bacillus coli communis*.

Practitioner, London

July, LXXXIX, No. 1, pp. 1-156

11 Some Relationships Between Fits and Mental Disorder. Sir G. H. Savage.
12 After-Treatment of Abdominal Sections Based on 1,232 Cases. E. S. Bishop.
13 Cyclical Vomiting. F. Langmead.
14 Primary and Early Secondary Tuberculous Cystitis. D. Newman.
15 Orthopedic Surgery. A. H. Tubby.
16 Measurement of Deformity. P. B. Roth.
17 Literature on Diseases of Children. H. Thursfield.
18 Recent Advances in Syphilis and Gonorrhea. J. S. Joly.
19 Treatment of Syphilis by Salvarsan. P. E. Tresidder and S. Tresidder.
20 Treatment of Syphilis of Nervous System by Auchen Methods. R. Hayes.
21 Should Venereal Diseases be Notifiable? S. Melville.
22 Diagnosis and Treatment of Chronic Suppuration of Maxillary Sinus. J. Harper.
23 New Method of Applying Carbon Dioxid Snow. W. K. Sibley.
24 Surgical Shock. W. B. Secretan.
25 Treatment of Cellulitis With Special Reference to Hand and Arm. B. Hughes.
26 Drs. Bonjat and Bidloo. J. Rae.

Indian Medical Gazette, Calcutta

June, XLVII, No. 6, pp. 209-256

27 Medicolegal Work in Calcutta Morgue, 1911. O. S. Moses.
28 Intracapsular Operation for Cataract (Smith's Method) from Point of View of Civil Surgeon. F. P. Connor.
29 Ten Months' Work in Military Employ. J. H. Burgess.
30 Psycho-Analytic Method of Treatment of Neuroses. O. Berkeley-Hill.

July, XLVII, No. 7, pp. 257-300

31 *Second Clinical Report on Treatment of Leprosy by Use of Vaccine Prepared from Cultivations of Leprosy Streptothrix and Further Experiments. E. K. Rost.
32 Outbreak of Rat-Plague in Suffolk and Manchurian Epidemic of Human Plague. W. C. Hossack.
33 *Discovery of Hitherto Undescribed Infective Disease Occurring Among Population of Rangoon. A. Whitmore and C. S. Krishnaswami.
34 Use of Ultra-Violet Rays in Sterilization of Water. W. W. Clemesha.
35 Diameter of Cornea, Especially in Its Bearing on Cataract Extraction. H. F. L. Taylor.
36 Outbreak of Epidemic Jaundice. E. H. V. Hodge.

31. **Vaccine in Leprosy.**—Commenting on his twenty-two patients, five of whom have practically recovered and fifteen have shown marked improvement, while the remaining two patients showed neither improvement nor increase, Rost says that improvement is very slow. The anesthetic patients should be given much larger doses of vaccine than the tubercular ones. Rost says that these twenty-two patients have had no other treatment beyond the weekly injections of vaccine and have all been under observation at the Kemmendine Leper Asylum. But some private patients treated by Rost showed more rapid improvement by adopting the salt adjuvant, stopping the consumption of sugar and fish in the diet and causing erythema of the skin by very hot baths, irritating application or friction a few hours after the injection of the vaccine.

33. **Unknown Infection.**—There is prevalent in Rangoon a peculiar septicemic or pyemic disease caused by an infection with a bacillus whose characters are so distinct from other known pathogenic bacteria that it can be readily isolated and certainly identified. The disease so far as the present evidence goes is peculiarly prevalent among chronic morphia injectors. The authors' clinical knowledge is at present so meager that only a bare suspicion of such infection can be excited by clinical signs, but bacteriologic knowledge is sufficiently complete to allow such suspicion to be decided rapidly by the aid of the laboratory. In very many cases the macroscopic appearance of the lesions caused by the infection are sufficiently characteristic to permit a confident diagnosis to be made immediately in the mortuary without the aid of bacteriology, though of course such aid should be sought wherever facilities for laboratory work exist. The disease has certain resemblances both clinically and bacteriologically to glanders, but the two infections can be readily differentiated if a proper bacteriologic examination be carried out. Confusion would be due to a reliance on the positive results of Strauss' test, as a positive result with this test is common to the two infections.

Journal of Laryngology, Rhinology and Otology, London

July, XXVII, No. 7, pp. 353-408

37 Technic of Auditory Examination in Infancy. P. M. Constantin.
38 Case of Congenital Occlusion of Right Posterior Naris by Bony Plate. H. B. Tawse.
39 Reports for 1910 and 1911 from Ear and Throat Department of Royal Infirmary, Edinburgh. R. Vérel and J. M. Dickie.

Journal of Obstetrics and Gynecology of the British Empire, London

June, XXI, No. 6, pp. 319-382

40 *Vaccines in Treatment of Puerperal Infection. R. J. Rowlette.
41 Adenocarcinoma Complicating Myomata of the Uterus in Twin Sisters. J. H. Croom.
42 Cause and Treatment of Procidentia Uteri as it Occurs in the Parous Woman. H. Jellett.
43 Case of Obstructed Labor Due to a Uterine Contraction Ring. H. Williamson.
44 *Case of Retention of the Fetus by an Internal Contraction Ring Treated by Continuous Weight Contraction. J. A. Willett.
45 *Retraction Ring as a Cause of Dystocia. D. Shannon.
46 Splenic Hemorrhage Complicating Pregnancy. J. E. Gemmell.
47 Pregnancy Complicated by Appendicular Abscess. J. E. Gemmell.
48 Pregnancy Associated With Left Chronic Inflammatory Appendage; Adherent to Pelvic Floor, and to Uterus, Simulating Fibroids in Uterine Wall. J. E. Gemmell.

40. **Vaccines in the Treatment of Puerperal Infection.**—Rowlette is convinced that vaccines, given in small doses, do no harm in puerperal sepsis; in fact, in the great majority of cases they do good. In many cases they produce immediate and remarkable improvement. Autogenous vaccines are more trustworthy than stock vaccines, and sometimes succeed rapidly where the latter fail. Anti-streptococcus serum given simultaneously increases the effect of streptococcal vaccine. To get the best results accurate bacteriologic diagnosis is necessary.

44. **Retention of the Fetus.**—To have performed an embryotomy in this case, Willett says would have been extremely difficult and the result of this operation in previous cases had seemed to him to be unsatisfactory, so he determined to try the effect of continuous weight traction before interfering further. To this end the head was perforated, a cranioclast screwed firmly home and attached to its handle by a towel was a weight of approximately eight pounds which hung over the foot-rail of the bed. (Estimated under as nearly as possible similar conditions the total pull on a spring balance was 6¼ pounds). A hypodermic injection of morphin ½ gr. was given partly in the hope that it might aid in the relaxation of the spasm, but chiefly to keep the patient quiet. For three hours the patient slept, and during this time there was a

complete absence of uterine contractions. She then awoke, and a few slight pains rapidly delivered the child, which weighed 6 pounds 14 ounces minus the brain. The remaining liquor amnii which escaped was stained with meconium and offensive. The placenta was born naturally twenty minutes later. A hot intrauterine douche was given, and it was then noticed that the obstructing ring had disappeared. Willett says that this was an ideal case in which to try the effect of continuous weight traction, since the child being dead and the mother's condition not really urgent there was no necessity for rapid delivery.

45. **Retraction Ring as a Cause of Dystocia.**—The proper treatment in these cases, Shannon says, is cesarean section if the child is alive, and craniotomy if the child is dead. In his case immediately after the uterus was emptied the ring suddenly disappeared. The patient made an uninterrupted recovery.

Annales de l'Institut Pasteur, Paris

June, XXVI, No. 6, pp. 401-496

49 *Influence of Indol on Development of Arteriosclerosis. (Influence de l'indol sur les scléroses.) S. Dratschinski.
50 Technic for Serodiagnosis. (Technique rationelle de la réaction de fixation.) M. Weinberg.
51 Biologic Properties of Albuminoid Substances Extracted from the Brain. (Propriétés biologiques des substances albuminoïdes extraites du cerveau.) A. Marie.
52 Catalytic Fertilizers. (Etudes sur les engrais catalytiques). E. Boullanger.
53 *Gall-Bladder Favorable Site for Inoculation. (De la vésicule biliaire envisagée comme lieu d'inoculation. Contribution à l'étude de l'immunité et à la physiologie générale.) H. Violle. Commenced in No. 5.

49. **Influence of Intestinal Poisons on Development of Arteriosclerosis.**—Dratschinski's communication issues from Metchnikoff's laboratory where so much work has been done in this line. The results of the later research confirm the previous announcements as to the toxic influence of indol. Guinea-pigs given moderate doses developed symptoms of acute intoxication of a neuromuscular nature. The symptoms may subside or run a progressive, fatal course. Long continued small doses by the mouth (0.04 gm. a day) induced in guinea-pigs an atheromatous degeneration of the aorta and chronic interstitial processes or the first phases of cirrhosis of the liver in monkeys and guinea-pigs; sclerosis of the adrenals in monkeys, and the primary stage of sclerosis of the aorta and brain in guinea-pigs. A natural specific sclerosis was sometimes found in the ascending aorta in guinea-pigs, mice and rats, evidently an age phenomenon. Several colored plates show the findings in the indol sclerosis.

53. **Gall-Bladder as Site for Inoculation.**—Violle concludes this long report of his extensive experiments with the statement that by arranging conditions in the rabbit so that the gall-bladder is made an empty, closed sac, it offers an unexcelled opportunity for the production of antibodies when inoculated with antigens. The technic is remarkably easy, he says, and there is no severe reaction of any kind. Immunization thus induced develops rapidly and seems to be quite durable. If the immunization does not seem ample, a supplementary intravenous injection of the same antigen effectually supplements the inoculation. The bacteria used as the antigen induce an active immunization while the serum of the animals thus treated acquires immunizing properties, bacterial and antitoxic, sufficient to induce passive immunization. The phenomena observed confirm the assumption that the antibodies are formed at the expense of the leukocytes, which, attracted to the gall-bladder by the antigen, readily make their way into it through its vascular connection with the liver, the latter organ serving as a reservoir of blood and hence of leukocytes.

Presse Médicale, Paris

July 6, XX, No. 55, pp. 577-584

54 *Chloroform and Its By-Effects. (L'Anesthésie chloroformique. Faits expérimentaux. Hypothèse sur la genèse des accidents post-chloroformiques.) M. Nicloux and G. Forquier.

54. **Cause of Chloroform Accidents.**—Nicloux and Fourquier report extensive experimental research which has demonstrated that chloroform has a special affinity for fat tissue and next in order for the nerve tissue, liver and kidney, spleen and striped muscle. The chloroform passes into the milk and cerebrospinal fluid and into the fetus; the proportion of chloroform in the liver of the fetus is generally larger than in the mother's liver. The organs with the largest blood-supply take up the chloroform most rapidly and lose it again rapidly, while the fat tissue is very slow in becoming saturated with it, but once in it, the chloroform stays there. The chloroform is decomposed in the blood, and the chlorids and carbon monoxid thus released take up the normal alkali in the blood so that it loses its alkaline reaction, and this, they think, is the cause of the accidents under chloroform. Every gram of chloroform split up in the blood takes up alkali equivalent to 1 gm. of sodium, and more than this of potassium. As the total alkalinity of the blood does not surpass 15 gm. of sodium or potassium, half of this, more or less, is thus neutralized by the splitting up of the chloroform. Their research indicates that about 50 per cent. of the chloroform is broken up in the body. The practical conclusion of their work is that administration of an alkali will restore what has been neutralized by the chloroform. Their experiments with sodium bicarbonate, given for this purpose, have not been very encouraging, but they are convinced that further research in the line of remedying acidosis will suggest means to avoid or cure accidents under chloroform.

Revue Prat. d'Obstétrique et de Gynécologie, Paris

June, XX, No. 6, pp. 161-188

55 *Disturbances of Micturition of Obstetrical Origin. (Troubles de la miction d'origine obstétricale. Destruction et réfection de l'urèthre chez la femme.) A. Guldjoglou.
56 *Abdomino-Pelvic Syndrome in Gynecology. R. de Langenhagen.
57 *Laminaria With Guard. (Laminaire avec butoir.) R. Bonneau.

55. **Disturbances of Micturition of Obstetric Origin.**—Guldjoglou gives a historical sketch of operations devised to repair obstetric injuries to the bladder and urethra, including Marion's new technic, which he has applied most successfully in two cases. The injuries of the urethra rarely heal spontaneously, and chronic incontinence is the rule afterward. Even when a plastic operation has been done on the urethra, the weakness of the new walls sometimes allows the incontinence to persist. To avoid this, Marion utilizes as far as possible what is left of the old urethra, piecing it out with a flap from the anterior wall of the vagina and covering it with flaps from the vulva. Then, to reenforce the new walls of the urethra, he makes a new canal for the urethra in the subpubic tissues, tunneling through them. The outcome was entirely satisfactory in the two cases mentioned. In another case there was sudden total retention of urine at the third month of pregnancy and it was found that the uterus in retroversion had mechanically obstructed the outlet of the bladder. The retroversion was corrected by manipulations and the vagina tamponed to hold it temporarily in place. The uterus soon adjusted itself to the changed conditions and there were no further disturbances in micturition. Mechanical disturbance of this kind seldom occurs after the third or fourth month. The urethra may be dragged out long by traction from the gravid uterus and it may be forced against the pubic symphysis, in which case there is liable to be edema and swelling, obstructing the lumen. Incontinence of urine at the beginning and toward the end of a pregnancy is frequent and is generally ascribed to the pressure on the bladder from the enlarged uterus but it may be the result of traction on the urethra, dragging and pulling on its walls until they lose their elasticity. An abdominal band to support the uterus might prevent this, but repose for a time is generally sufficient in the milder forms.

56. **Abdomino-Pelvic Syndrome in Gynecology.**—Langenhagen warns that the disturbances from loss of balance and inflammation in the genital organs and abdomen, "the abdomino-pelvic syndrome," in women with a constitutional neuro-arthritic tendency, do not require surgical measures. The diathesis is characterized by a tendency to venous stasis, defective nutrition and defective circulation in the pelvis—thus the soil is prepared for congestions, spasmodic contractions and pathologic conditions in any or all of the pelvic organs, or viscera, the kidneys, liver, bladder, uterus or

adnexa. He ascribes the frequency of enterocolitis in women to the fact that they have uterus and adnexa. The contents of the lower abdomen and pelvis have lost their physiologic balance, and the result is a crowd of congestive and painful reflexes setting up spasms of various kinds. If the ligaments lose their elasticity, trouble is sure to follow, as the organ they support is stretched or displaced, especially as the small pelvis is so extra abundantly supplied with blood-vessels. Treatment should be by general, not local measures; rest, strict regulation of the diet and bowel functioning, massage of the pelvic organs and especially of the ligament found defective, working to restore its elasticity and the circulation in the region. Massage is most effectual by its reflex action, which is also the explanation of the benefit from Swedish movements in these cases. Even more important, perhaps, is the soothing effect of hot or tepid general baths and douches and flushing out the vagina in the course of the baths. The author practices at Luxeuil and has found the thermal mineral baths there peculiarly effectual in treating this class of patients.

57. **Laminaria With Guard.**—Bonneau was twice called in consultation in cases in which a laminaria introduced into the cervix had worked its way upward and into the uterus until its outer end rested against the posterior lip of the cervix and every contraction of the uterus forced this outer end deeper into the cervix tissue, rendering its spontaneous expulsion impossible. He was inclined to ascribe this mishap to defective technic until a similar mishap occurred in his own experience. Since then he has the laminaria made with a rubber disc that fits over the outer end; this prevents the laminaria from working up into the uterus while it also prevents it from slipping out, when the vagina is loosely packed with gauze.

Berliner klinische Wochenschrift

July 8, XLIX, No. 28, pp. 1309-1356

58 *Operative Treatment of Nephritis. (Die chirurgische Behandlung der verschiedenen Formen der Nephritis.) H. Kümmell.
59 Preliminary Entero-Anastomosis for Gangrenous Hernia. (Ueber die frühzeitige Anwendung der Enteroanastomose vor dem Bruchkanal zur Behandlung der gangränösen Hernien.) Y. Noguchi.
60 Palpation in Gynecology. (Neuerungen für das Studium der gynäkologischen Diagnostik.) L. Blumreich.
61 Production of Mucin and Albumin by Tubercle Bacilli. (Bildung von Eiweiss und Mucin durch Tuberkelbacillen.) F. Weleminsky.
62 Composite Radiography. (Polygramme mit erkennbarer Aufeinanderfolge der einzelnen Bewegungsphasen.) M. Levy-Dorn.
63 Chemical and Physical Factors in Coagulation of the Blood. (Ueber die Gerinnung des Blutes.) E. Fuld and E. Schlesinger.
64 Testing Resistance to Salvarsan of the Blood-Corpuscles. (Versuche mit dem Boehm'schen Schnelldestillator und die Salvarsanresistenz der Blutkörperchen.) H. Mühsam.
65 Improved Technic for Killian's "Floating Laryngoscopy." (Eine Modifikation der Schwebelaryngoskopie.) Albrecht.
66 Music as a Therapeutic Factor. (Shakespeare und sein Heilfaktor Musik.) H. Schelenz.

58. **Operative Treatment of Nephritis.**—Kümmell states that he has operated in twenty-six cases of bilateral chronic nephritis or Bright's disease. In five cases no benefit was apparent, but in fourteen marked improvement followed, the edema and albuminuria subsiding in large measure and the patients being able to return to business. Three must be considered cured both from the anatomic and clinical standpoints. One young man who had had nephritis for four years and was treated by double decapsulation seemed in perfect health when examined a year afterward, and the urine was free from pathologic elements. Another of the cured patients is a nurse in the hospital who was treated by double decapsulation after failure of prolonged internal treatment of her chronic nephritis. She passed through a severe streptococcus angina recently but the urine persisted normal throughout. The third cured patient has had no signs of nephritis since the double decapsulation done as a last resort after two years of ineffectual internal treatment of the nephritis which had reduced him to a deplorable condition. This was five years ago and he has had no trace of recurrence although he leads an active life in the tropics with much horseback riding. A boy of 12 still has traces of albumin but seems cured otherwise. The improvement in these cases under decapsulation of the kidneys cannot be explained as a spontaneous subsidence, as no benefit had been realized before under years of persevering internal measures. The effect was often most striking, following close on the operation. Kümmel reiterates that acute nephritis with abscess formation indicates nephrotomy without delay, while the form of chronic nephritis distinguished by pain in the kidney, mostly on one side, is also favorably influenced by decapsulation, or still better by nephrotomy, and the patients for a long time are free from disturbances and have their earning capacity unimpaired. The same favorable effect is observed with hemorrhagic chronic nephritis. In medical nephritis—Bright's disease—operative treatment is not always successful, but the most threatening symptoms, the anuria and uremia, are frequently favorably influenced, and in a certain proportion of the cases the albumin and tube-casts disappear from the urine or become reduced in amount and the subjective improvement is marked over long periods and a complete cure is possible.

Correspondenz-Blatt für Schweizer Aerzte, Basel

June 20, XLII, No. 18, pp. 665-696

67 Anaphylaxis. (Die Ueberempfindlichkeit.) W. Silberschmidt.
68 Prognosis of Rupture of Tympanic Membrane. (Ueber Trommelfellrupturen und ihre Prognose.) J. Hegetschweiler.

July 1, No. 19, pp. 697-728

69 *Heliotherapy of Surgical Tuberculosis. (Die Sonnen- und Freiluftbehandlung der chirurgischen Tuberkulose im Hochgebirge.) A. Hüssy.
70 Epidemic Suppurative Processes. (Ueber epidemieartig gehäuftes Auftreten von Eiterprozessen.) C. Widmer.

69. **Direct Sunlight in Treatment of Surgical Tuberculosis.**—Hüssy was house physician during 1911 at one of Rollier's sanatoriums at Leysin in Switzerland, where the results of heliotherapy and conservative measures have recently attracted the attention of the medical world. Hüssy since then has spent some time at Berck where Calot is doing similar work but without much reliance on sunlight treatment, as he has the benefit of sea air. Both are convinced of the imperative necessity for immobilization in bed for all patients with tuberculosis of the spine, hip joint, legs, abdomen, etc., and they keep it up long after all painfulness is past, until roentgenoscopy shows that the focus has entirely healed. This standpoint will be appreciated by those who note the extensive and irreparable destruction of bones and joints in patients treated elsewhere with walking appliances, permitting the patients to be up and about. Hüssy says that the time is now past when a physician can keep in bed for a few weeks a child with incipient hip-joint disease and then allow it to get up and go to school. Calot relies mainly on immobilization in plaster but Rollier prefers extension, wherever possible, as this avoids the atrophy of the muscles liable to occur with a plaster cast. Rollier's patients with spondylitis are fastened down on their backs to a hard mattress which can be opened for exposure of the focus to direct sunlight. Hüssy comments on the complete transformation of Calot's views; from being the most radical advocate of surgical measures, the results obtained have converted him to the direct opposite. He says now: "Recovery is certain for closed tuberculosis. To open a tuberculous process or to let it open itself, is to throw the door open through which death too often will enter. In tuberculosis the knife rarely cures, often aggravates and always mutilates." In his first year at Berck he did eighty hip-joint resections, but for years has done no resections or amputations. Hüssy comments further on Bardenheuer's recent conversion to similar views after a visit to Leysin. He declares that the state should provide places where surgical tuberculosis can be treated with fresh air and direct sunlight, preferably in the mountains; they are needed just as much as for treatment of pulmonary disease for which alone the state seems to concern itself at present. Rollier puts all arriving patients to bed for a few days, to ensure acclimatization (altitude about 4,000 feet). After two or three days the bed is wheeled out on the gallery and the sunlight exposures begun, the focus exposed three times for five minutes each the first day, ten minutes the second, until by the end of the week the patient is getting the sunlight exposures for an

hour and a half a day. At the same time the body is gradually exposed to the sunlight, at first the feet, then the legs, until the patients become accustomed to lie all day in the open air, the head protected, and take the sun baths for hours at a time. During the intervals the wounds are covered with an aseptic dressing and occasionally the ultraviolet rays and Bier's hyperemic treatment are applied. Thin, excitable and restless patients do not bear the direct sunlight as well as others. Each patient has a gallery to himself (except in the cheapest sanatorium), where he can lie naked exposed to the light during the day and night also if he wishes. Hüssy states that he scarcely ever saw any one catch cold. The children allowed to be up and long acclimatized, ran around in winter with snowshoes and bathing trunks for their only apparel. (Another recent communication on heliotherapy was summarized in these columns June 1, p. 1729.)

Deutsche medizinische Wochenschrift, Berlin

July 18, XXXVIII, No. 29, pp. 1361-1400

71 Sympathetic Ophthalmia. (Diagnose und Therapie der sympathischen Augenentzündung.) A. Peters.
72 Metastatic Extradural Suppuration. (Metastatische extradurale Eiterung.) G. Sultan.
73 Immunity to Diphtheria. (Ueber Diphtherie-Druchseuchung und Diphtherie-Immunität.) B. Hahn.
74 *Writer's Cramp. (Zur Kasuistik und Behandlung des Schreibkrampfs.) Noehte.
75 Oppenheim's Index to Express State of Nourishment. (Brauchbarkeit der Oppenheimschen Indexzahlen zur objektiven Darstellung des Ernährungszustandes.) von Sohlern Jun.
76 Frequency of Stupor and Amnesia in Exanthematous Typhus. (Ueber Psychosen bei Fleckityphus.) N. Hirschberg.
77 Sources of Error in Serodiagnosis of Syphilis. (Erfahrungen und Experimente über die Fehlerquellen in der Serodiagnostik der Syphilis.) R. F. N.-Geyer.
78 Hyperemia, Massage, etc., in Treatment of Scars. (Norbenbehandlung.) F. Kirchberg.

74. **Writer's Cramp.**—Noehte describes a few cases of writer's cramp to emphasize the importance of psychic, emotional factors in the development and also in the treatment of this affection. Arthritic, neuritic or other local processes may also be involved; these and long use of the hand invite the psychogenic affection to locate here, but they alone cannot induce the development of true writer's cramp, he insists. Treatment must be by psychotherapy in large measure, associated with exercises in writing, first moving the arm loosely in the air as if writing. When the patient can do this, he is trained to make straight marks and then write the simplest letters, stopping at the slightest sign of fatigue. The psychic measures and these writing exercises promptly cured his three patients in a few weeks.

Monatsschrift für Kinderheilkunde, Berlin

July, XI, No. 2, pp. 49-92

79 *Cure of Summer Diarrhea by Correction of Infant's Food With Buttermilk. (Behebung von Durchfällen der Säuglinge durch Korrektur ihrer Nahrung mit Buttermilch.) K. Stolte.
80 Association Tests in Children. (Zur Bewertung des Assoziationsversuches im Kindesalter.) T. Goett.
81 Calcium Metabolism in Children. (Kalkstoffwechsel des gesunden und des rachitischen Kindes.) J. A. Schabad.
82 Influence of Reaction of Medium on Transformation of Calcium and Phosphoric Acid in the Infant's Large Intestine. (Eine Demonstration des Einflusses der Reaktion auf den Umsatz von Kalk und Phosphorsäure in Dickdarm des Säuglings.) K. Blühdorn.
83 Quantitative Elimination of Hexamethylenamin in Human Milk. (Ueber die quantitative Ausscheidung von Urotropin in der Frauenmilch.) K. Rieder.

79. **Buttermilk in Treatment of Diarrhea in Infants.**—Stolte reports in detail, with the weight curves, four cases of diarrhea in infants from three to five months old. They were losing weight from the diarrhea and he substituted buttermilk for two or more of the ordinary feedings during one day, with almost immediate improvement in the stools and ultimate gain in weight and general condition. Buttermilk is effectual, he says, on account of its low fat content and high lime content and the considerable proportion of albumin.

Münchener medizinische Wochenschrift

July 16, LIX, No. 29, pp. 1585-1640

84 *Can the Blood-Stream Be Reversed? (Zur Frage der Umkehrbarkeit des Blutstroms.) H. Coenen.
85 Muscular Architecture of the Stomach and Radiography. (Beziehung der auf den Röntgenbildern hervortretenden Formen des menschlichen Magens zur Muskelarchitektur der Magenwant.) G. Forssell.
86 Antiperistaltic Movements in the Large Intestine in Severe Constipation. (Zur Frage der Antiperistaltik im Dickdarm bei schwerer Obstipation.) H. Albrecht.
87 Estimation of Amount of Stomach Content by Siphoning and Radiologic Control. (Bestimmung der Mageninhaltmenge durch Ausheberung und ihre radiologische Kontrolle.) A. Weil.
88 Roentgenotherapy of Gynecologic Skin Diseases. (Behandlung gynäkologischer Hauterkrankungen mittels Röntgenstrahlen.) E. Runge.
89 Bismuth Salve in Treatment of Fistulas; Ultimate Outcome. (Dauerresultate nach der Behandlung von Fisteln mit Beckscher Wismutsalbe und Ersatzversuche des Bismutum subnitricum.) M. Brandes.
90 Heat Generated in Slaking Lime Utilized in Formaldehyd Disinfection. (Verwendbarkeit der beim Kalklöschen entstehenden Wärme für die Zwecke der Raumdesinfektion mit Formaldehyd.) H. Hammerl.
91 *Prophylaxis of Coryza With Acetylsalicylic Acid. (Chirurgische Prophylaxe des akuten Schnupfens mit Salizyl.) P. Sick.
92 Characteristic Variations in Blood-Pressure in Tuberculosis and Other Diseases. (Studien über die Technic der klinischen Blutdruckbestimmung.) C. J. Enebuske.
93 Etiology of Scoliosis. K. Port.
94 By-Effects After Intramuscular Injection of Hormonal. (Unangenehme Begleiterscheinungen nach intramuskulärer Hormonalinjektion.) G. Kleinberger.

84. **Reversability of the Blood-Stream.**—Coenen concludes from his experimental research and his clinical observation that there is no physiologic basis yet at hand for arteriovenous anastomosis as an effectual measure for gangrene of the leg.

91. **Prophylaxis of Coryza With Acetylsalicylic Acid.**—Sick has found that one or two doses of 1 gm. each of acetylsalicylic acid, taken at the first indication of an oncoming cold in the head, will arrest it. The drug is especially effectual when the first tickling in the throat is felt towards evening, and the drug is taken then and again in the morning. This permits him to go about his surgical tasks after breakfast without any further symptoms of coryza. If acute rhinitis has developed or the coryza relapses, two or three further doses always cured it completely. He does not think the drug acts on the bacteria but it seems to enhance the resisting powers of the tissues. He regards the salicylic preparations as physiologic drugs, as they do not injure the tissues while they reenforce them, just as we are learning to appreciate and utilize iodin more and more.

Therapie der Gegenwart, Berlin

July, LIII, No. 7, pp. 289-336

95 *Appendicitis and Colitis. E. Sonnenburg.
96 *Salvarsan Fever. (Ueber "Salvarsanfieber.") A. Bingel.
97 Intermediate Position of the Colloid Metals Between Inorganic and Albuminous Substances. A. Wolff-Eisner.
98 Collapse Under Hormonal. (Vorsicht mit dem Hormonal!) R. Mühsam.
99 Reform in Advertising Medicinal Articles. (Die Arzneimittelliste des Deutschen Kongresses für innere Medizin.) G. Klemperer.

95. **Appendicitis and Colitis.**—Sonnenburg comments on the grave prognosis of diplococcus peritonitis in children. It is most frequent in girls, and almost invariably it is diagnosed as appendicitis and operative treatment is applied. This is a mistake, he declares, as diplococcus prognosis is seldom influenced for the better by a laparotomy. The noticeable increase from the start in mononuclear cells in the blood-picture, shows the seriousness of the affection. In peritonitis of appendicitic origin, he does not suture the laparotomy incision if there is over 50 per cent. increase in the neutrophile cells. He regards chronic appendicitis as more frequent than the acute form, although it often escapes detection. The resulting digestive disturbances and headaches are referred to the stomach, as this usually suffers sympathetically by reflex action. Constipation is the rule. Removal of the appendix puts an end to all these disturbances, and he urges prompt resort to it in such cases. Roentgenoscopy has demonstrated the pathogenic importance of adhesions and displacements left from old, possibly unsuspected inflammatory processes in the region, and has explained the persistence of trouble after the appendix alone has been removed. In acute, chronic and ulcerative colitis, the cause should be determined in each case so far as possible as a guide to treatment, whether it is due to appendicitis or some previous local condition. Only after failure of persevering internal treatment is an operation justified. The operation should aim to rest the colon by diverting its content, and to sterilize it by copious flushing and rinsing with some soothing and healing fluid.

96. **Fever Under Salvarsan.**—Bingel explains the fever and other by-effects of salvarsan as the result of the escape of toxins from the bodies of the spirochetes as they are killed by the salvarsan. The toxic action is greater the larger the number of spirochetes in the body. The by-effects are thus not the work of the salvarsan directly but only indirectly.

Wiener klinische Wochenschrift

July 4, XXV, No. 27, pp. 1036-1070

100 Medical Chemistry and Cancer Research. (Aufgaben der medizinischen Chemie in der Geschwulstforschung.) E. Freund.
101 *Chemistry of Cancer. (Zur Chemie des Karzinoms.) S. Fränkel.
102 Physiology of the Midbrain. (Zur Physiologie des Zwischenhirns.) B. Aschner.
103 *Peptolytic Ferment Index in Differentiation of Exudates. (Vorkommen von peptolytischen Fermenten in Exsudaten.) R. Lenk and L. Pollak.
104 *Vasomotor Hemiplegia in a Child. A. Soucek.
105 Clinical Study of the Pupil Phenomena. (Zur Klinik der Pupillenphänomene.) S. Goldflam. Commenced in No. 26.
106 Retrospection and Outlook. (Rückblicke und Ausblicke.) A. Barkan (Stanford University, Cal.).

101. **Cancer Research.**—Fränkel is chief of the laboratory at the L. Spiegler-Stiftung at Vienna, and in this address delivered at the recent meeting of the national cancer research society, he discussed the peculiar behavior of tryptophan in malignant disease and in pregnancy, and qualitative tests to determine the amount present in the fluids examined. None other of the amino-acids, he stated, is able to do the physiologic work of tryptophan, and only those albuminous bodies which contain tryptophan are able to supply the organism with the needed albumin. On the other hand, the albumin used in the structure of cancer contains no tryptophan, or only traces. He thinks that further research on tryptophan will clear up some of the mysteries of cancer. As cancer and embryonal cells seem to be peculiarly sensitive to the action of alkaloids, he has been experimenting with the action of compounds of arsenic and chinolin, the first time, he states, that heterocyclic compounds of arsenic have been produced.

103. **Improved Tryptophan Test for Cancer.**—Lenk and Pollak announce that they have succeeded in determining a peptolytic index in various body fluids which differentiates the various exudates and some of their causes. They determined the dilution of the solution at which there is no further trace of free tryptophan, and accept this as the peptolytic index. They examined the effusion in pleurisy, the ascitic fluid and cerebrospinal fluid, in 165 cases, and found that in normal conditions and with stasis exudates the fluids have only slight glycyltryptophan-splitting power; it is more marked with inflammatory effusions, but it is strongest with cancer juice and with exudates of tuberculous origin. The peptolytic power of the cerebrospinal fluid obtained by lumbar puncture will thus reveal at a glance whether the symptoms are due to uremia, serous meningitis or tuberculous meningitis. In some cases they were able to ascertain by this means the coexistence of a tuberculous peritonitis with ascites from cirrhosis of the liver, in others to exclude it positively. [A number of articles on the tryptophan test have appeared in The Journal, Oct. 20, 1911, p. 1420, and April 27, 1912, p. 1319, and others.]

104. **Vasomotor Hemiplegia.**—In Soucek's case the boy of 10 had mild cerebral apoplexy develop while exercising in a gymnasium. The right hemiplegia was accompanied by severe pain in the opposite temple, but all the symptoms subsided without a trace after three days. Soucek states that the boy had an unusually unstable vasomotor system and the father and brother were subject to migraine. He is inclined to explain the trouble as merely a vasomotor phenomenon, the result of local ischemia of the brain, such as is responsible for intermittent limping and nervous angina pectoris. The boy's arteries were hard and stiff, a frequent finding in these "vasomotorers." Féré described a case of recurring transient vasomotor hemiplegia in a man of 43 who had suffered from migraine since he was 19.

Policlinico, Rome

July 7, XIX, No. 28, pp. 1001-1040

107 *Bicycle Tire for Extension of Fractured Leg. (Nuovo metodo di estensione della gamba.) P. Soria.
108 *Malaria in Relation to Operations and Trauma. (Studio dell' infezione malarica in rapporto agli interventi operativi ed ai traumi.) R. Prampolini.
109 Malarial Cerebellar Syndrome. P. Pozzilli.

107. **Technic for Extension After Fracture.**—Soria winds a bicycle tire around the leg and inflates it with the air-pump. This holds the fracture firm, even an oblique fracture, and permits traction from the start with two strips of cloth lengthwise of the leg under the inflated tire and extending below the foot to form a loop. The tire can easily be removed at any time and is readily replaced. If the pressure is too tight, a little air can be allowed to escape or the pressure can be increased by pumping in a little more air. The method has been applied with excellent results in the hospital at Tunis. The facility of procuring a bicycle tire and pump almost anywhere are special advantages.

108. **Malaria in Relation to Trauma and Operations.**—Prampolini practices in a malarial district and he calls attention to the way in which malaria is liable to flare up after an accident or operation, the onset of fever frequently proving misleading to the surgeon or physician. When the organism is weakened from any suddenly acting cause of the kind, it is possible for malaria to get its grip on the patient for the first time. He reports the details of nine cases to show the puzzling conditions that may result unless the possibility of malaria is borne in mind. The syndrome of malaria may be present even although the number of parasites in the blood is very small; it may be necessary to examine a number of slides before one is discovered. In one of his cases the enlarged spleen suggested malaria but the blood was sterile before the operation; afterward the parasites were comparatively numerous in the blood.

Riforma Medica, Naples

June 29, XXVIII, No. 26, pp. 701-728

110 *Modification of Peristalsis With Gastric Tumors. (Sul valore diagnostico dell'alternata peristalsi nei tumori dello stomaco.) F. Perussia.
111 *Chronic Enlargement of Spleen and Liver With Multiple Lymphadenitis. (Spleno-epatomegalia cronica febbrile—de virus ultramicroscopico?—con varieta poliadenitica.) U. Gabbi. Commenced in No. 25.

110. **Peristalsis of the Stomach With Local Tumors.**—Perussia analyzes the roentgenoscopic findings in six cases of gastric cancer emphasizing the modifications in the peristaltic movements. The modified peristalsis may be evident before any other signs permit differentiation of the lesion. The behavior of the peristalsis is characteristic for malignant or benign stenosis and for cancer or ulcer. In one case the only sign that suggested cancer rather than ulcer was the fact that the peristaltic wave, starting in the middle portion of the stomach, seemed to be arrested for a moment as it neared the pylorus region, and then continued, but very sluggishly. In two cases the peristaltic wave ran along the greater curvature but died out as it approached the pylorus. In another, the wave seemed to turn back on itself as it reached the pylorus region, without any absolute contraction of the pylorus. In the sixth case the peristalsis was very torpid throughout the greater curvature and died out before it reached the antrum of the pylorus. Cancer was found at the operation in all these cases except the last in which the trouble was advanced primary ulcerative tuberculosis of the stomach, its effect on peristalsis being much like that of malignant disease.

111. **Chronic Febrile Enlargement of the Spleen and Liver With Multiple Lymphadenitis.**—Gabbi gives the details of four cases in which this clinical picture was presented. The features of the cases excluded malaria and pernicious anemia, but the course seems to be invariably slowly progressive. No benefit was observed from the different measures tried. The patients were adults, and the constantly negative bacteriologic and protozoologic findings and the multiple lymphadenitis in the absence of tuberculosis and syphilis, give the affection its special imprint. It is possible, Gabbi remarks in conclusion, that certain other cases of febrile splenomegaly on record may belong in this category.

Ugeskrift for Læger, Copenhagen

July 11, LXXIV, No. 28, pp. 1017-1046

112 Advantages of Albumin Milk for Sick Infants. (Om Aeggehvidemælk.) V. Poulsen.